

## Swift & Co.

Omaha, Nebr.—Quick-chilled meats in identifiable packages are receiving much attention at the Swift & Co. branch here. F. D. Lee, in charge of that department at Omaha, stated:

"The production of quick-chilled meats in identifiable packages is one of the latest moves on the part of this company to meet the ever-changing plans of the modern housewife. Her groceries, and all other table products, have been reaching her for several years in identifiable packages. The brand told her she was getting first-class merchandise. Not only that, but the label informs as to the contents and the quality.

"Yet the meats reaching her table had no mark of any kind that would identify them in case she should again desire the same kind. This is the very face of the fact that the meat is the one thing around which the economic housewife of today builds her dinners. All else must conform to the meats used. Is it any wonder she is now demanding her meats be delivered to her in a form that she can recognize? This branch of Swift & Co. has been serving meats in identifiable packages since last September, and has met with wonderful success."

"Swift & Company believes this method of marketing meats is sound," said Mr. Lee. "It is in step with present living and buying habits. It is economical, cleanly and above all convenient for the home consumption. The basis of this method is found in modern merchandising practice. Sanitation is now demanded in all walks of life, and the method adopted of serving identifiable packages of meats is certainly a move along the laws of strictest sanitary development.

"At present this company is marketing about a dozen cuts of meat in the package form, and gradually increasing its list. For example, pork chops are now put out in cartons of twelve pounds each, fifteen separate packages, with three chops to the package. Another package contains six pounds, eight packages, with three chops each. Leg of lamb has proved very popular and has been marketed in twelve-pound cartons, three separate packages of four pounds each. Steaks, especially the very best, have jumped into favor with the large hotels, night clubs, and the fine eating houses at winter resorts of the South. Both Miami and Palm Beach hotels are on the list of users. Shipments have been made to Cuba."

These identifiable meats are all quick-chilled, and carry a temperature of 28 degrees when placed in the refrigerator cars for shipment. In shipping they get choice location in the car, as orders are to place them next the ice bunkers. The distributor receives them in that condition, and, with proper care, he delivers them to the consumer in the same condition. The housewife can, if she has electric refrigeration, stow the meats in her refrigerator and keep in the same good condition for days.

"Yes, electric refrigeration is almost necessary in our plan of serving the public identifiable meats in quick-chilled form," said Mr. Lee. "Electric refrigeration is the known method that retains a certain degree of cold at all times, and that cold can be regulated. Then it is economical, also. It is sanitary, consequently, all things work in harmony. Yes, you may say this method of marketing meats will be developed by Swift & Co. The housewives of the country will like it when once tried, and we have already won the favor of the larger hotels and resorts serving the better class of patrons."

Swift & Co. have their own formula for treating "quick-chilled" meats, which is secret, as they have not yet obtained patents on the method, all of which are now pending.

## Refrigerator Express

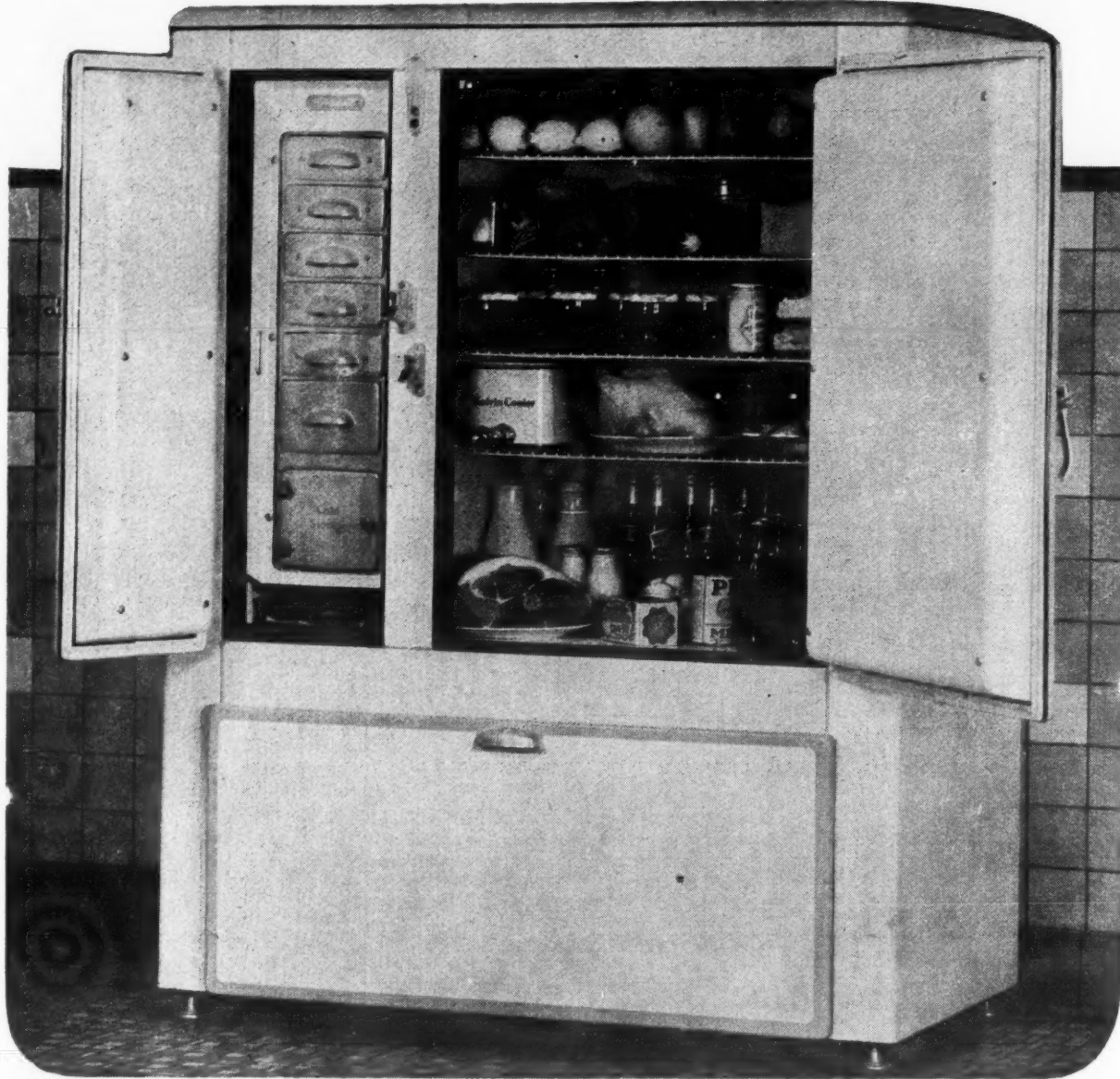
Detroit—An innovation in express truck trailers has been introduced by the Express Transportation Company of Detroit and Chicago, with the inauguration of a new refrigerator service between the two cities. Two new tractors and four new insulated refrigerator trailers have been added to the fleet of units now employed by the company in handling freight between Detroit and Chicago.

These new type trailers, which were made to order for the company, are equipped for sealing against the weather and carry chemical refrigerating apparatus in each unit. They are, it is stated, the first of this particular type ever manufactured. Perishable goods may be kept at an even temperature during the day-to-day trip from Detroit to Chicago or return.

With the addition of these new units the company also added two regular tractor units, which brings their total of trailers now in constant service to 18, each with a capacity of eight tons.

The Express Transportation Company, a Detroit concern, specializes in door-to-door pick up and delivery of freight from Detroit to Chicago and intermediate interstate points. The company owns and operates all its own equipment.

## Quick Frozen Food in the Home



THE Kelvinator Corporation months ago realized the trend toward quick-frozen foods, and in designing the models now on the market, made provisions for the new products.

Evidence of an anticipation of this new development was furnished when Kelvinator made a cold storage compartment a feature of the De Luxe cabinets of its new line of household refrigerators. This cold storage compartment is designed to maintain a below freezing temperature for the storage of frozen meats, game, fish and fowl; for the storage of an extra supply of ice cubes, or for the making of ice up to approximately 10 pounds in weight.

The new Kelvinator line was announced at its distributors' convention early in October. The six hundred distributors and dealers at that convention cheered wildly when the cold storage

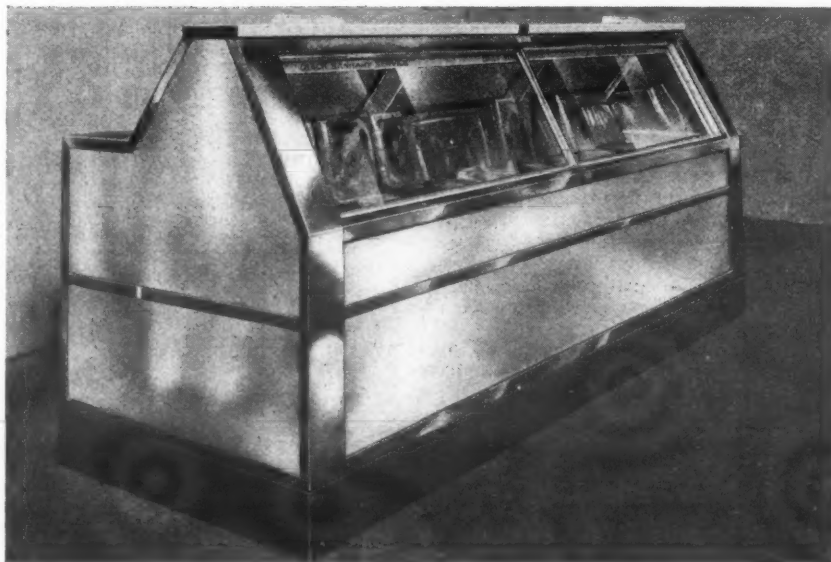
feature was displayed. They were outspoken in their commendation of Kelvinator executives and engineers for having had the foresight to incorporate into the new De Luxe cabinets a feature that was, as they saw it, destined to soon fulfill a definite need and purpose. Because of this and other exclusive features in the new Kelvinator line, sales exceeded the most sanguine expectations of factory executives and the dealer organization. Distribution has been fully accomplished.

With this cold storage compartment owners of De Luxe model Kelvinators may buy the new frozen products and find immediate storage for them in a compartment always below freezing that will keep these foods in approximately the same condition as when purchased and until time for use.

Experiments have indicated that the

condition and quality of fresh meats are improved by storage in the new compartment. In fact, this compartment is, of itself, a domestic freezer of perishable foods that may be kept for an indefinite period.

The introduction of this new feature into Kelvinator gave to the public what Kelvinator has called "balanced refrigeration." First, there is the correct temperature in the food compartment, below 50 degrees for the ordinary protection of foods. Next, there is a temperature for the normal production of ice cubes and the freezing of desserts. Third, there is the super-fast freezing temperature produced by Iso-Thermic tubes, and fourth, there is the cold storage compartment, in which the temperature is always below freezing. This compartment in the De Luxe models is located directly under the lowest ice cube tray.



What's  
Doing in  
Springfield?

Above photo shows Oreole cabinet in use by GENERAL FOODS CORP'N operating five such cases in SPRINGFIELD, MASS., merchandising Quick Frozen foods made under the Birdseye patents.

ELECTRICAL Refrigeration men are casting their glances toward the directions from which come favorable reports on the public acceptance of QUICK FROZEN FOODS.

Oreole Engineers have kept pace with the strides set by the pioneers of this frozen food product and have developed a proved method of merchandising these foods that holds the lowest possible sub-freezing temperatures necessary for both storage and display.

We'll gladly demonstrate OREOLE to you.

**OREOLE**  
OTTENHEIMER

FALLSWAY & HILLEN ST.

BALTIMORE, MARYLAND

## Wilson & Co.

AMONG the leaders in the promotion of quick-frozen meats is Wilson & Co., Inc., of Chicago. The well known Wilson slogan, "The Wilson label protects your table," was in itself an invitation for the company to enter into a branch of the meat producing industry that gave promise of making possible to identify and guarantee practically all cuts of meat.

At present the Wilson activities in the quick-frozen field are in a process of development, and they will be described in a future issue of the Refrigerated Food section of ELECTRIC REFRIGERATION NEWS. Among the fresh chilled meat cuts which Wilson & Co. is marketing through certain selected outlets are: Certified Loin Lamb Chops, Certified Rib Lamb Chops, Certified Leg of Lamb Roast, Certified Rolled Loin of Lamb Roast, Certified Shoulder of Lamb Roast, Wilson's Selected Pork Chops in 6-lb. pails, Certified Pork Chops (center cuts), Wilson's Selected Pork Roast, Certified Pork Tenderloins, Certified Breast of Lamb, Certified Lamb for Stewing.

Circulars which Wilson & Co. is furnishing to the stores which are selling the Wilson frozen products, give directions to the purchaser, telling how to handle the cuts when the time comes to cook them. These notices say that the products are ready for the pan or oven. It also advises the housewife to keep them in the refrigerator, just as she would other meat products, in the event that she does not intend to cook them at once.

## PROFUSION OF PROBLEMS

(Concluded from Page 11, Column 2)

perature within the container does not rise over a few degrees. However, the water resulting from the defrosting quickly freezes again when it falls into the drip pans and cannot be carried away in the usual overflow type of drain. This places upon the refrigerator manufacturer the problem of providing for the removal of the ice thus formed with the least possible inconvenience to the user of the equipment. This again reverts back to the design and construction of the container, which must provide ready access to the coil compartments, thereby placing a limitation not only to their location but also to their size and shape.

The increasing trend of the refrigerating industry towards higher back pressures and increased surfaces will undoubtedly bring about a change in the design of low side cooling elements. The additional refrigerating load resulting from the lower temperature involved will, to a great extent, have to be provided for by building cooling units of higher efficiency. This has already been done to a great extent in the present commercial field through the development of fin type low sides having refrigerant contact sufficient to attain a fin temperature approximately the same as the refrigerant temperature. This increased low side efficiency will compensate, partially at least, for the decrease in compressor capacity resulting from the lower back pressure required in low temperature work.

The refrigerator manufacturer will do everything possible to provide the maximum coil compartment space that design will permit, but the problem of providing for quick service, and the every increasing value placed on floor space, will have to be considered in this connection.

No refrigerating unit can give really satisfactory service unless the food container to which it is attached is so constructed as to maintain the required temperature, and so designed as to permit economical operation. The reverse also is true. No refrigerator can give satisfactory service unless it is equipped with a refrigerating unit capable of producing the desired temperature on an economical basis.

The problem of properly refrigerating frozen food products from the manufacturer to the housewife is a new one, but is being rapidly solved through intensified research and development work.

## Yes, Yellow

IN these days when science is supplanting prejudice in so many fields, there seems no good reason why a modern publication should not pass on to its readers the benefits of scientific investigation. Hence, this yellow paper. The sensation that ELECTRIC REFRIGERATION NEWS is seeking is restfulness for its readers' eyes.

Experiment has shown that black on yellow has the greatest legibility where printed matter is concerned. See "Light and Color in Advertising," M. Luckiesh, 1923, p. 250; "Psychology of Advertising," A. T. Poffenberger, p. 263; "The Art of Rapid Reading," Walter B. Pitkin, p. 45.



# ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

ISSUED EVERY TWO WEEKS  
VOL. 4, No. 16, SERIAL No. 92Copyright, 1930, by  
Business News Pub. Co.

DETROIT, MICHIGAN, APRIL 9, 1930

Entered as second class matter  
Aug. 1, 1927, at Detroit, Mich.FIFTEEN CENTS PER COPY  
TWO DOLLARS PER YEAR

## WAVE OF SELLING SETS NEW RECORDS

### MIDGLEY DESCRIBES NON TOXIC QUALITIES OF NEW REFRIGERANT

Valuable Substance Developed  
in Frigidaire Laboratories

Atlanta, Ga., April 8.—Properties of a new refrigerant, as yet unnamed, said to be ideally suited for mine cooling, room cooling, cold storage warehouse and other extensive refrigeration projects were demonstrated today by its discoverer, Thomas Midgley, Jr., at the seventy-ninth meeting of the American Chemical Society.

Mr. Midgley, internationally known as the discoverer of Ethyl gasoline, is a consultant engineer for General Motors Corporation. He developed the new substance in the laboratories of Frigidaire Corporation at Dayton, Ohio, with the assistance of A. I. Henne, a Belgian chemist.

The new refrigerant, which is non-toxic, non-inflammable and non-explosive, is particularly suited for use on submarines and in other places where there is but limited ventilation, he stated. Owing to its favorable engineering properties it opens a still broader field for heavy duty commercial refrigerating equipment, he said.

Use of the new refrigerant, it was declared, would greatly increase the efficiency of miners, working in extreme heat, at great depths. Millions of dollars have already been expended by mining organizations to find a solution to this problem, Mr. Midgley said. He stated

by providing them with cool sleeping quarters. He pointed out that on fifty per cent of the earth's surface northern Europeans cannot live and maintain their natural vigor.

In a paper, "Organic Fluorides as Refrigerants," read at the morning session, Mr. Midgley reviewed refrigerants

(Concluded on Page 4, Column 4)

### SERVEL PLANT NOW BUSY MEETING HEAVY DEMANDS

Evansville, Ind.—Rumors that the manufacture of Servel refrigerators will be discontinued are emphatically denied by H. H. Springfield, chairman of the board, and V. E. Vining, sales manager. As evidence of the fact that Servel is going along in prosperous condition, Mr. Vining gives the following facts and figures in regard to the company's present business:

"The number of units shipped in 1929 was 171% of the number of units shipped in 1928. This increase was made in the face of the Chicago refrigeration code inquiry which greatly affected the entire industry for two or three of the best months of the year, and adverse general business conditions during the final quarter of the year.

"Units on order for current models so far this year equal 148% of units on order for current models last year at this time. Orders received thus far in the year equal the quota figures set in October before the stock market crash in Wall Street, and as you know, the quota was based on a very substantial increase in 1930 over business done in 1929."

Mr. Springfield adds the statement that he "sees no reason why thought should be given to the discontinuance of any growing branch of the company's varied activities."

### COPELAND ORDERS KEEP POURING IN

Mt. Clemens, Mich.—March was the greatest month for sales in the history of Copeland Products, Inc. The company entered April with four times as many unfilled orders on hand as on the first day of any previous April month in its existence, according to W. D. McElhinny, vice-president in charge of sales. Inasmuch as April and May are the largest selling months in the electric refrigeration industry, Copeland's record-breaking March is particularly significant.

At the end of the first week of April the flow of orders had continued unabated, with no sign of a check.

Copeland's national sales as of April 1 were 140% of those a year ago. April

is expected to exceed even March in sales, while the next three or four months are expected to establish new production and sales record.

Copeland's outlook is declared the best in four years by Mr. McElhinny, who has just completed a 3,000-mile tour of 15 key cities in all sections of the United States in which he addressed more than 3,000 Copeland distributors, dealers and salesmen, and found widespread business optimism, particularly in the Middle and Southwest. New distributor and dealer contracts are being received at the rate of 75 per week. Copeland now has more than 2,000 dealer outlets, with substantial representation in practically every major city.

## Refrigeration Industry Makes Big Gain in First Quarter

Present Pace Means Sale of More Than 1,000,000 Machines  
During 1930

WITH the close of the first quarter of 1930, the electric refrigeration industry stands out as one of the brightest spots in the nation's business picture. Reports from the leading refrigerator manufacturers show that sales for the first three months are far ahead of the first quarter of 1929, and that the swing is still upward.

Frigidaire reports, "All first quarter records broken"; General

Electric sales for January, February and March are 50 per cent ahead of the 1929 record; Kelvinator's statement begins, "March was the greatest month in the

history of the Kelvinator Corporation as many unfilled orders on hand as on the first of any previous April in the company's existence.

Other companies also report increased business. Electrolux, after a start that was slower than anticipated, is now moving along on its schedule which calls for a big increase over last year. Universal Cooler announces that it has more unfilled orders on hand at present than at any time in its history.

Predictions for 1930, made by ELECTRIC REFRIGERATION NEWS, in May of last year, estimated 1930 sales at approximately 1,000,000 units, and set the 1929 figure at 650,000. Accurate figures for 1929 have never been compiled, but the most reliable estimate made was in excess of 630,000. The great increase shown thus far with only three months gone, indicate that last

May's prediction, made long before the Wall Street disturbances, still holds good and that the million mark will be passed before the end of the year. The industry is setting a pace that almost baffles calculations.

Household units are the big leaders thus far with nearly every one of the leading companies. Commercial sales are gaining, but not at quite so rapid a rate. The industry as a whole is making a record that is attracting attention all over the country. Every comparison with other industries helps to bring out the strength of the refrigeration industry. In Detroit, for example, which is the home of several important makers of refrigerators, there is a marked contrast between the activity at the refrigerator plants and the quietness of the automobile factories.

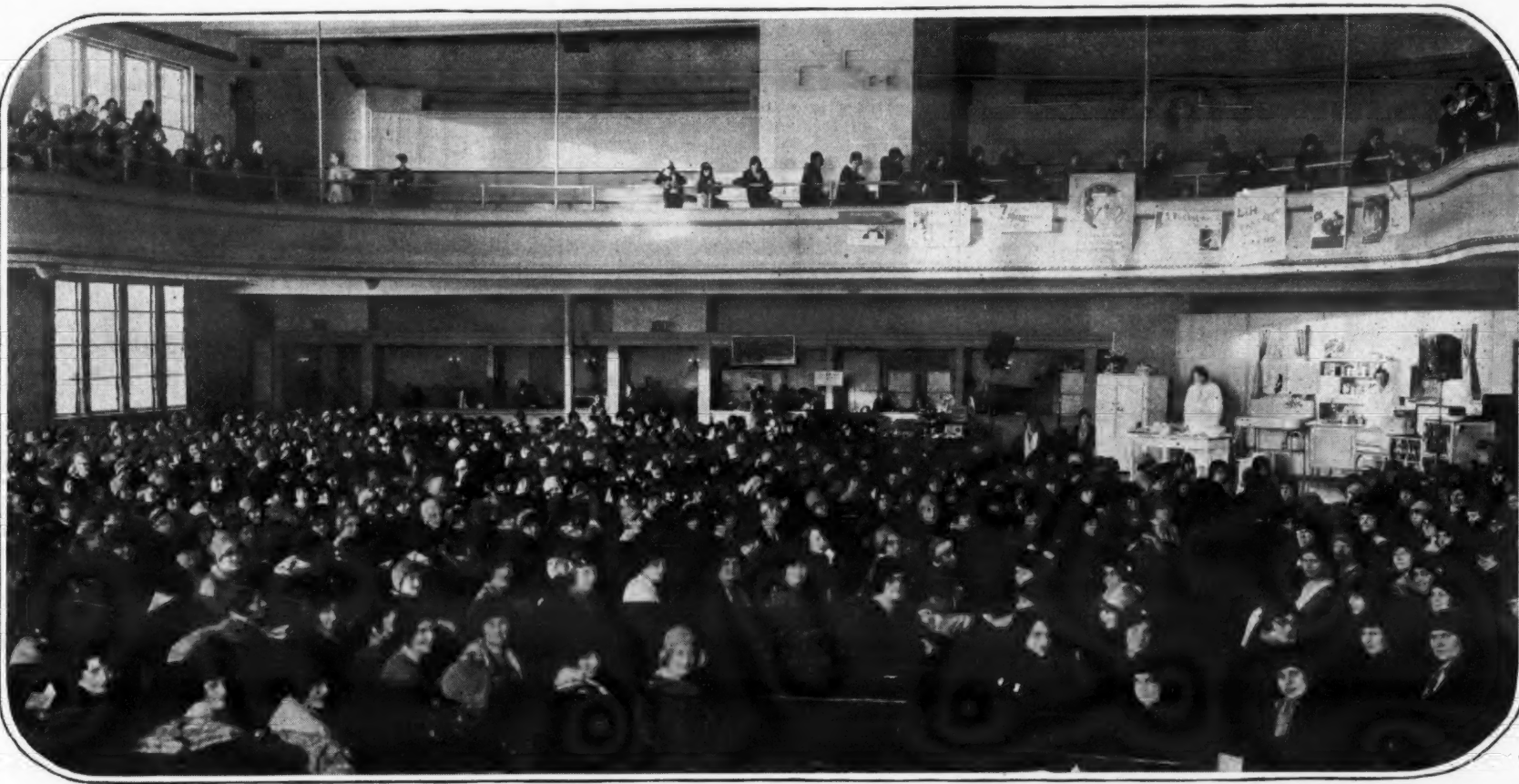
It is the same in other parts of the country. Refrigerator organizations are busier than ever before while other industries are lagging. Curtailment of buying, which is characteristic of the present situation in so many industries, not only does not exist in refrigeration, but is replaced by an acceleration in buying that is carrying the whole industry to new records.

Statements from some of the foremost companies, made for ELECTRIC REFRIGERATION NEWS, are printed elsewhere.

### G. E. REACHES NEW TOP AND MAINTAINS QUOTA

Cleveland, Ohio.—Sales of General Electric refrigerators are fifty per cent ahead of the record for the first three months of last year, according to General Electric officials here. The big quotas, which were set for 1930 at a time when a business depression was not anticipated, are being maintained by the big General Electric sales force scattered throughout the country.

### The Home Comes to the Refrigerator



THE Hibbing Plumbing & Heating Co., of Hibbing, Minn., recently held a cooking school which was attended by 800 women. Mrs. Husted, home economics expert, was the lecturer and demonstrator. A model D-11 Kelvinator

was on the stage and used in refrigeration demonstration work. The picture shows the great crowd of women in attendance.

Adam N. Schirmer, Kelvinator representative in Hibbing, placed the refrig-

erator at the school and in this way a large number of prospects for electric refrigeration was obtained. The Kelvinator used in the demonstrations is equipped to maintain different temperatures in the various compartments.

### FRIGIDAIRE FAR AHEAD IN FIRST THREE MONTHS

Dayton, Ohio.—All first quarter production records were broken by Frigidaire Corporation during the first three months of 1930, according to E. G. Blechler, president and general manager. More men are being employed than ever before at this time of the year, he stated.

"This increase in employment took place after the installation of a large amount of labor saving machinery, which, in itself, was counted upon to take care of a normal increase in business without additions to the personnel during the first quarter," he said. "This company, the largest in the field, expects to again break all records in 1930."

"Present manufacturing activity is centered upon the household electric refrigerator. The moist air compartment, or hydrator, recently added to the line, has proved to be a very popular improvement, and indications point to a still greater demand when the public becomes acquainted with the advantages it affords."

### STEADY GAINS NOTED IN UNIVERSAL COOLER SALES

Detroit, Mich.—Universal Cooler Corp. reports 1930 business running ahead of last year. On one large contract alone shipments to date have aggregated almost double the entire amount shipped to the same consumer in 1929, and monthly shipments on this same contract are cur-

rently running at the rate of approximately 100 per cent of the total of last year's shipments to the same consumer. President Johnston reports unfilled orders on hand are the greatest in the company's history.

### A.S.R.E. Meeting Atlanta, May 7-9

PREPARATIONS for the annual spring meeting of the American Society of Refrigerating Engineers, which takes place in Atlanta, Ga., May 7-9, are well under way, and chairmen of the various committees report that their plans are nearing completion.

For three days the engineers will bask in the warm southern sunshine and the sessions have been arranged so that the refrigeration men, their wives and guests from parts north may have a good chance to enjoy the much famed hospitality that the southern states extend so readily. Three sessions will be sandwiched in between golf, trips, dancing and dining. The mornings will be devoted to papers and discussions of refrigerating plants, refrigerating machines, low temperature and special applications.

Indications are that a number of engineers from parts north after weathering the Boreal blasts are planning to journey south for a little defrosting.

### BEST MONTH IN HISTORY REPORTED BY KELVINATOR

Detroit, Mich.—March was the greatest month in the history of the Kelvinator Corporation, according to H. W. Burritt, vice-president in charge of sales. Shipments during March were the largest ever made by Kelvinator in any one month, and two and one-half times those made in February.

More ice cream cabinets were shipped in March than in any other month during the many years of Kelvinator's and Nizer's ice cream cabinet business. April and May have been always the peak months in the company's business. Distributors' and dealers' inventories are low.

"Several reasons are accountable for the success which Kelvinator is enjoying," says Mr. Burritt. "Chief among these is the public response to the new household Kelvinators, all models of which are equipped with Iso-Thermic Tubes for fast automatic freezing, as well as other exclusive features. One of these, the cold storage compartment in the De Luxe models, the temperature of which is always below freezing, nicely ties in with the advent of frozen and frosted foods, which are now being offered for sale."

"Another factor which must be considered as having an important bearing on the rapid acceleration of Kelvinator business is the aggressiveness of its distributing organization. This year's augmented national advertising program, stressing the advantages of the new models, has had prompt effect."



## Increase in Commercial Sales Forces Milwaukee G. E. Distributor to Seek New Quarters



STEADILY increasing sales of commercial refrigerators have made it necessary for the E. H. Schaefer Co., Milwaukee, Wis., distributors of General Electric refrigerators, to obtain new quarters for the display of commercial units. The new display is located at 212 Michigan St., and is just a few doors away from the main Schaefer salesroom. The roominess of the new quarters al-

lows the prospect to see the large refrigerators just as they would appear in his place of business.

At night the large boxes attract a good deal of interest in their well lighted quarters. Commercial units of the large, small, and intermediate sizes, and water coolers are displayed here. Recently the Schaefer Co. closed several big commercial orders.



## A PREDICTION THAT IS COMING TRUE!

Demand for new models—as predicted in January—is crowding the facilities of Copeland's new and larger plant!

Introduction of new Copeland models, with such outstanding value-features as Water Chiller, Coldial, Locked Mechanism Compartment, electric lights and colored tops, has had such tremendous effect on Copeland sales throughout the country that the demand is actually taxing the capacity of the new and larger Copeland factory!

Nor is Copeland's unusual activity restricted to household models. The general quickening of business, evident throughout the country, has brought with it an increased call for apartment installations, water cooler equipment and systems for commercial use.

In short, Copeland is fulfilling the predictions made in January, that 1930 would prove a banner Copeland year. And there is every prospect that the present demand will be well sustained. If you would like to share the prosperity which this healthy situation insures, you should get in touch with us without delay.

**COPELAND SALES COMPANY**  
332 CASS AVENUE MOUNT CLEMENS, MICH.

**Copeland**  
DEPENDABLE ELECTRIC REFRIGERATION

## DRIVE ON BIG SALES QUOTAS STARTED BY DEALERS IN TOLEDO

Toledo, Ohio.—With sales quotas for 1930 reaching a new high mark, the realization that electric refrigeration is an absolute necessity in the home, apartment, store and office is becoming widespread in Toledo.

Definite quotas for 1930 already set by distributors and dealers of electric refrigerators in Toledo total 7,800, and it is predicted that actual sales for the year will exceed 8,000 units.

Frigidaire heads the list with a quota of 3,000 units. General Electric runs second with 2,000 units as their goal for the year. Copeland is aiming for the 750 mark, as is Kelvinator. Norge expects to reach or exceed 500 units, and Electrolux also has set 500 as their year's quota. Absopure expects to exceed 300 units.

It is pointed out by the dealers that in practically every case the quota they have set for the year is one that they have every reason to believe can easily be passed. This in itself is evidence of the return of prosperity to this section of the state, inasmuch as in every instance the quota for 1930 is greatly in excess of the sales for 1929.

The Toledo Edison Co., Frigidaire dealers, has set the highest quota of any dealer in Toledo. Their quota for 1930 calls for the installation of 3,000 units. The company sold 2,695 units in 1929, an increase of 15% over the sales of 1928. Sales during the last four years totaled 8,600 units and represents purchases of 9% of the lighting customers of the group.

The Toledo Edison Co. has a large display room at Jefferson Avenue and Superior Street. The general sales management is under J. E. Fanning. The refrigerators are attractively displayed in their own section of the store, and are used frequently in window displays. During the summer season electric refrigerators are shown almost constantly in the windows, but at all times they are featured in the show windows from two to four times a month. Frigidaires are installed on a five-dollar down payment plan, the balance being paid in 24 monthly installments. The company does a large amount of newspaper and billboard advertising, holds frequent demonstrations, makes liberal allowances on old ice boxes, gives away electric toasters, thermos bottles and floor lamps and other articles as premiums, and circularizes the city monthly.

The E. H. Walker Co., 221 Cherry Street, is the Frigidaire distributor for Toledo and 32 counties in Ohio, Michigan and Indiana. E. H. Walker, president of the company, is a prominent figure in the refrigeration industry in this locality, having been Frigidaire distributor for the last nine years. He was the originator of a new sales organization plan which attracted the attention of J. A. Harlan, salesmanager of the Frigidaire Co., Dayton. This plan was unanimously adopted by all dealers and distributors throughout the country at the annual dealers and distributors convention, which was held in Dayton late in 1929. Mr. Walker estimates that there are upwards of 10,000 Frigidaire units installed in Toledo.

The General Electric refrigerator is distributed in Toledo and 44 counties in Ohio, Michigan and Indiana by the H. G. Bogart Co., with headquarters in the Richardson Building. The company recently moved to Toledo from Akron, O., succeeding the Lake States Supply Corporation as G. E. distributors in Toledo and surrounding territory. They also maintain branch distributing offices in Fort Wayne and South Bend, Indiana.

Their spacious display room has rough plaster tinted in pale green. Attractive furniture helps to make the room a striking background for the various types of refrigerators. Three large windows, on one of Toledo's most traveled streets, give opportunity for good displays.

The Bogart company has set 2,000 units as their sales quota for 1930.

Company officials expect to exceed this figure, judging from the large volume of sales made during the last three years. The Bogart company advertises in newspapers, sends out circulars and holds territorial meetings from time to time.

Electrolux has done well in Toledo and vicinity during the last three years. This machine is sold here by the Northwestern Ohio Natural Gas Co. The company reports that the four and five-cube foot boxes are the best sellers, and the cost of operation averages about one dollar per month.

A record of the domestic jobs in Toledo shows that approximately 600 Electrolux refrigerators were installed during that period. The company has set its sales quota at 500 units for the year 1930.

Copeland was put on the market in Toledo early in 1929 by the Manore Sales and Service, North Erie St. Jerry B. Manore, manager of the firm, and his sales force were instrumental in installing 450 units during the first year of Copeland's entry in the Toledo field. Since that time his sales force has been considerably enlarged and additional dealer agents have been appointed. The company has set 750 units as their sales quota for the year 1930.

"Know the Product You Are Selling" is Mr. Manore's slogan. Every man in his organization is thoroughly educated in the mechanism and advantages of the Copeland refrigerator, through a salesman's school and by visits to the Copeland factory.

The Norge electric refrigerator is sold in this city by the Toledo Mantel and Tile Co., 118 Huron St. This company took over the dealership of this product in 1928. Since that time they have installed approximately 400 Norge units in Toledo. Sales during the first quarter of 1930 were greater than the corresponding period of a year ago, and company officials report that they experienced no difficulty in selling their quota for the first quarter. Their 1930 quota calls for a total installation of 500 Norge units.

The Pioneer Plumbing and Heating Co., 136 West Woodruff Avenue, is the distributor for Absopure electric refrigerators. They took over the Absopure franchise in this city in 1928, and since then have installed 300 units in Toledo. The company has recently doubled its sales force and has set 300 units as their quota for 1930.

Kelvinator refrigeration is being sold by the Lion Store, one of Toledo's largest department stores. The company's offices are located at Adams and St. Clair Sts., where they have a handsome display room. L. S. Talbert is manager of the Kelvinator refrigerator department.

Kelvinator is well advertised through demonstrations, by house-to-house canvass, circulars, show window displays and newspaper advertising.

Mr. Talbert estimates that there are approximately 1,000 Kelvinators now being used in Toledo homes. The company has made plans which call for the installation of 750 Kelvinator units in 1930.

Refrigerator Headquarters, Phillips Avenue, distributors for Servel and Electrolux, after reporting a period of encouraging business, now are taking steps to readjust their policies to meet the requirements of the present situation. The readjustment, firm members announce, will not be revolutionary in character, but is expected to yield influence in the conduct of future business operations. They state their quota for 1930 has not yet been definitely determined, but they anticipate nothing in the manner of handicaps that would retard their progress.

## PENNSYLVANIA RAILROAD BUYS ANOTHER FRIGIDAIRE

Altoona, Pa.—A new Frigidaire has been installed in the Pennsylvania Railroad test plant laboratories at Margaret Avenue and Sixteenth Street by the Wolf Furniture Company. This is the second large Frigidaire installation made for the Pennsylvania Railroad by the Wolf Company.

## MOTOR CAR DISTRIBUTORS TURN TO REFRIGERATION

AUTOMOBILE distributors and dealers in the southwest are finding electric refrigeration an excellent sales medium to supplement automobile distribution, and in some cases even to be a major part of their business. In the past 30 days three leading distributors in Texas have taken on the Copeland franchise and have taken with them nearly 150 dealers who are now handling Copeland refrigeration in their territories, according to Ralph W. Jones, Copeland regional manager in the southwest. Jones spent several days last week at the Copeland plant in Mt. Clemens.

The three Texas automobile distributors who have become distributors of Copeland are Rice Motors, Inc., who recently opened a new sales room on one of the most prominent corners in Houston; Murray, Winerich Motor Co., San Antonio, and Knight-Whippet, Inc., of Austin. Many of their dealers inaugurated their franchises with carload orders of Copeland products.

Another automobile dealer to take over a Copeland franchise is the Harding Motor Co., of East St. Louis, Ill., who entered electric refrigeration after a trip through Texas and discovering the trend among auto distributors there.

Another important distributor connection made by Copeland in the past few weeks is that of Lindeman-Hoffer, Inc., radio distributors of St. Louis, who become Copeland distributors for eastern Missouri and southern Illinois. They already have named 17 dealers in St. Louis proper and a total of 50 in their territory. They report applications being received at a rate indicating that shortly 200 dealers will be handling Copeland in this section. Jones was accompanied to Mt. Clemens by Earl R. Goodin, president, and C. U. Price, secretary-treasurer, of the Goodin Radio Corporation, Wichita, Kansas, who have been named Copeland distributors in that region.

Jones reports refrigeration sales and business outlook excellent in the southwest. "Copeland sales are 350% greater in the southwest than a year ago, and the Copeland outlook there the best in years," he declares. "There is no sign of business depression from St. Louis to El Paso, and from Omaha to New Orleans. The rule there is 'business as usual' with everyone so busy attending to it that they have no time to think of depression or listen to its existence elsewhere, or to look in the skies for any signs of dark clouds."

## TO HANDLE G. E. IN PALMER, MASS.

Springfield, Mass.—Central Massachusetts Lighting Co., of Palmer, has been appointed dealer for the General Electric refrigerator line. Osborne Hardware Co., of Holyoke, has been appointed an associate dealer with Ned Squire. The appointments were made through the Electric Device Co. of this city.

## INDIANA UTILITY COMPLETES APARTMENT JOB

Kokomo, Ind.—Northern Indiana Power Co., Kelvinator distributor with headquarters at Indianapolis, recently installed two R-30 and twenty-five 2448 P models with twenty-five H M coils in the Windsor Court apartments.

**Fulco**  
REFRIGERATOR COVERS

"FULCO" covers are used by those dealers who realize the importance of making deliveries in perfect condition—without scratches or broken enamel. For they know that complaints mean dissatisfied customers and loss of business.

"FULCO" covers are a real service feature that helps sales and holds trade.

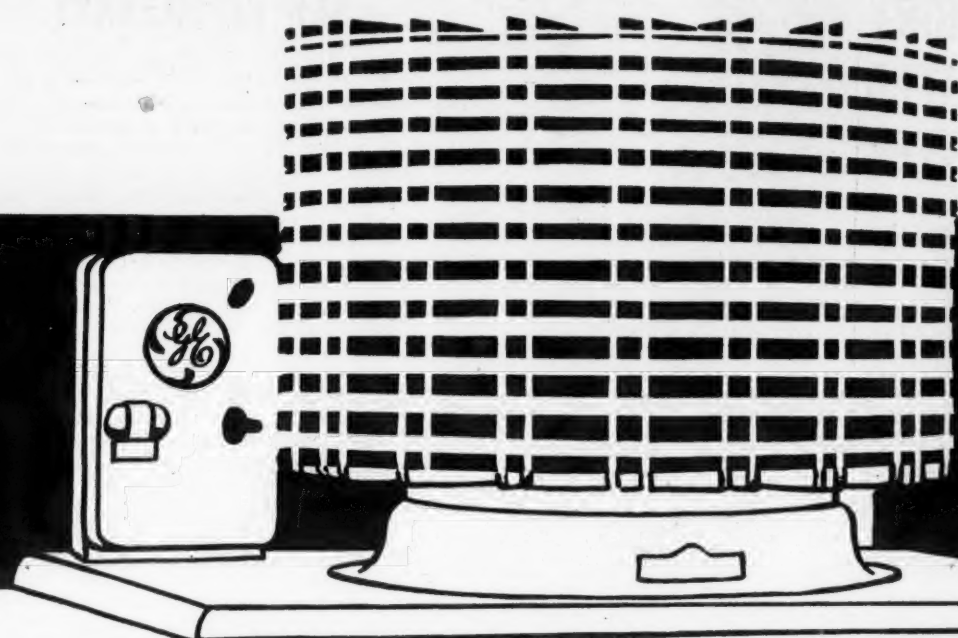
Substantially constructed, heavily padded, box-shaped, providing perfect protection.

Give us the dimensions of your refrigerators, and let us quote special prices on your individual needs. Write our nearest house.

**Fulton Bag & Cotton Mills**  
Manufacturers Since 1870  
ATLANTA · NEW ORLEANS · DALLAS · ST. LOUIS  
MINNEAPOLIS · BROOKLYN · KAN. CITY · KAN.

ON AND OFF  
IN A JIFFY





# HUNDREDS OF THOUSANDS OF USERS *not one* HAS PAID **1¢** FOR SERVICE

This is an unparalleled record—a record that has established consumer preference for the General Electric Refrigerator all over the country—it means easy installations—a minimum of servicing.

It is a record that makes it easier for dealers and salesmen to sell General Electric Refrigerators—a record that makes the General Electric Refrigerator franchise profitable to even the smallest dealer.

GENERAL  ELECTRIC  
ALL-STEEL REFRIGERATOR



## For Automatic Refrigeration Manufacturers

Whatever you require in copper, brass, bronze, or copper alloys, we are prepared to furnish on contract either parts or sub-assemblies ready for installation in your unit. Boilers, compression nuts, filters, float-balls, condensers, special nipples, bellows and thermostats, and a large variety of other standard parts. Let us quote on your requirements.

### BRIDGEPORT BRASS CO.

General Offices and Plant  
Bridgeport, Conn.  
Offices in Principal Cities



## Bitte Sehen Sie Siete 12

GESELLSCHAFT MARKWELL

## DAUGHTER'S MEMORY TO BE PERPETUATED BY MEDICAL CENTER

W. C. Grunow Gives \$1,000,000 For Work in Phoenix, Arizona

WILLIAM C. GRUNOW, of the Grigsby-Grunow Company, radio manufacturers, who have announced that they will soon begin the manufacture of electric refrigerators, has created a trust fund of \$1,000,000 for the establishment and maintenance of a medical center in Phoenix, Arizona. The gift is made in memory of Mr. Grunow's seven-year-old daughter Lols, who died a year ago.

Mr. Grunow announced the gift just before returning to Chicago from Phoenix, where he has been in the custom of spending the winter for several years. Work on the first unit of the Medical Centre will be started at once. This building will cost about \$250,000.

The foremost minds of medical science will be gathered here to work toward solution of various problems which confront that field of science, according to Mr. Grunow's plan.

The object of the institution, as outlined by him, will be to increase the efficiency of medical science and its service to the public, and at the same time to employ its facilities and the talents of

its staff toward decreasing the cost of those things to the public.

If the first unit of the institution proves successful along the plan outlined for its operation, it will be only the forerunner of a far-reaching program designed to solve pressing medical needs and problems of the present day, Mr. Grunow said.

He cited the fact that a committee of nationally prominent men and women, headed by Dr. Ray Lyman Wilbur, secretary of the interior, now is investigating ways and means of decreasing medical expense to the public, at the same time increasing efficiency.

Not long ago Mr. Grunow made a gift of \$1,000,000 to the American College of Surgeons for research work, a part of which will be expended at the Phoenix institution.

### INTERNATIONAL HEATING CO. ENTERS FIELD

St. Louis, Mo. — The International Heating Co., 3808 Park Ave., manufacturers of oil burners, has entered the mechanical refrigeration field. Production of a complete line of household cabinets, ranging in size from a 4 cu. ft. net to a 15 cu. ft. net capacity, has been started, according to K. Tureczek, manager of the refrigerator department. These models are offered in lacquer or porcelain and all-porcelain finishes.

Compressors are of the reciprocating type, single and twin cylinder, driven by rubber mounted Wagner motors. Sulphur dioxide is the refrigerant in these machines. Temperature control is provided and all cabinets are equipped with flexible tray, vegetable dish and quick freeze control.

Commercial work and apartment house jobs, both in single and multiple hook-up will be handled by this company. At the present, the plan is to distribute these refrigerators through the company's distributors and dealers who are now selling oil burners.

## NEW REFRIGERANT

(Concluded from Page 1, Column 1)

now in common use and pointed out that none of them has both proper engineering properties and perfect safety features.

"It is essential," he said, "that a medium for mechanical refrigeration be stable, non-corrosive and possess suitable vapor pressure characteristics. Heretofore no substance has been adapted to refrigeration, combining non-toxicity and non-inflammability with suitable engineering properties.

"We have discovered that individual members of a certain class of compounds may be selected for use as refrigerants having any desired combination of the above properties. This class is described as fluoro-halo-derivatives of Aliphatic hydro-carbons.

"The peculiarities of this class show interesting differences from the commonly accepted generalizations regarding organic compounds containing halogens. To illustrate: In general, when a hydrogen atom is replaced by a halogen atom, the boiling point of the resulting compound is higher than that of its parent; for example,  $\text{CCl}_4$  boils at a higher temperature than  $\text{CHCl}_3$ . Similarly,  $\text{CHF}_3$  should boil higher than  $\text{CH}_2\text{F}_2$ , which it does. But a quite unexpected result is obtained when fluorine replaces hydrogen on a carbon atom already linked to one or more halogen atoms; for example,  $\text{CHCl}_3$  boils at  $61^\circ \text{C}$ , while  $\text{CFCl}_3$  boils at  $24^\circ \text{C}$ .

"Again, in the case of toxicity, it is accepted that the substitution of halogen for hydrogen in general increases toxicity and in view of the toxic properties of inorganic fluorides it is extremely surprising to find that the substitution of fluorine for hydrogen on a carbon atom already linked to one or more halogen atoms greatly reduces the toxicity."

The refrigerant demonstrated by Mr. Midgley is a compound of carbon, chlorine and fluorine, technically known as fluoro-chloro-methane. It is a clear white liquid with a boiling point eighteen degrees below Fahrenheit.

In the course of his demonstration he inhaled some of its fumes and then exhaled them into a glass container. A lighted taper subsequently placed in the glass container was promptly extinguished. Thick frost gathered at the mouth of the drum as the refrigerant was poured out.

It will be at least two years before the new refrigerant will be available for general use, Mr. Midgley said. It is now being manufactured at Dayton in limited amounts for experimental purposes.

Mr. Midgley said that in tests conducted by the Bureau of Mines, guinea pigs did not die when exposed for half an hour to a mixture consisting of eighty per cent of this vapor and twenty per cent of air, while a forty per cent concentration was not fatal to guinea pigs exposed twenty-five hours. Dogs and monkeys were exposed seven hours a day for sixty days in a twenty per cent concentration without injury.

In his paper Mr. Midgley paid tribute to Dr. Frederic Swarts, of the University

of Ghent, whose pioneer work on the fluorine derivatives formed the basis from which present productive methods have been derived.

"Were it not for the work of Dr. Swarts it is certain that the present work would have been delayed for an indefinite period. This constitutes another example of the already numerous cases where industrial development has been reared upon the foundation of pure scientific research," he said.

Mr. Midgley was graduated from Cornell in 1911, entered the employ of the National Cash Register Company, and later engaged in private research in tires until 1914, when he became superintendent of the Lancaster Tire and Rubber Company. His pioneer work in tetraethyl lead, resulting in the production of the anti-knock compound ethyl gasoline, brought him into national prominence. He has been associated with General Motors since 1920. He is a vice-president of the Ethyl Gasoline Corporation. He was awarded the William H. Nichols Medal of the New York Section of the American Chemical Society in 1923.

Dr. Henne, his associate in the development of the new refrigerant, received his degree at the University of Brussels. He came to the United States three years ago to join the General Motors staff.

## ELECTROLUX BUSINESS IS GOOD IN FIRST QUARTER

Evansville, Ind. — "Electrolux planned a very large percentage of increase in business during 1930, compared to our actual accomplishments during 1929," writes H. W. Foulds, vice-president in charge of distribution.

"During the forepart of the first quarter of the year, results were not up to our expectations. This condition was caused by apparently unsatisfactory business conditions at a few points, rather than in the country at large. Our accomplishment during the latter part of the quarter was very gratifying and, in fact, fully up to our expectations for that period.

"A study of the accomplishment from week to week during the first quarter gives us every assurance that our accomplishment during the first half of the year will actually be in excess of our planned expectancies for that period.

"As we begin the second quarter, we regard the situation as being very healthy and entirely satisfactory. We are sure that in so far as our own performance is concerned, it will be a record year.

### ADOPTS UNIVERSAL COOLER AS STANDARD EQUIPMENT

Grand Rapids, Mich. — Announcement is made that the Grand Rapids Cabinet Company has adopted Universal Cooler as standard equipment for its products. The Grand Rapids company has long been identified with the manufacture of ice cream equipment, and its requirements are reported to be increasing rapidly.



329 Fairmont Ave.  
Jersey City, N. J.  
(53 Alaskas—Frigidaire Units)



117 Greylock Ave.  
Belleville, N. J.  
(41 Alaskas—Rice Units)



2684 Mayfield Ave.  
Cleveland, Ohio  
(17 Alaskas—Copeland Units)

#### No. 514-P

Illustrating  $5\frac{1}{4}$ " Legs (optional at added cost)  
Enamel Steel Exterior—Seamless Porcelain Lined  
ONE AND ONE-HALF INCH CORK-BOARD INSULATION

All Doors Have Air-tight Gaskets  
Dimensions Width Depth Height Cu.Ft.  
Outside—Without  
Casters or Legs..... 30 20 36  
Capacity of Food Compartments..... 5.98  
Shelf Area 11.25 Square Feet



# ALASKA

CUSTOM DESIGNED CABINETS

The Alaska Cabinet is suited to practically all types of electric refrigeration

## FORGED BRASS FITTINGS

A Complete Line for Automatic Refrigeration

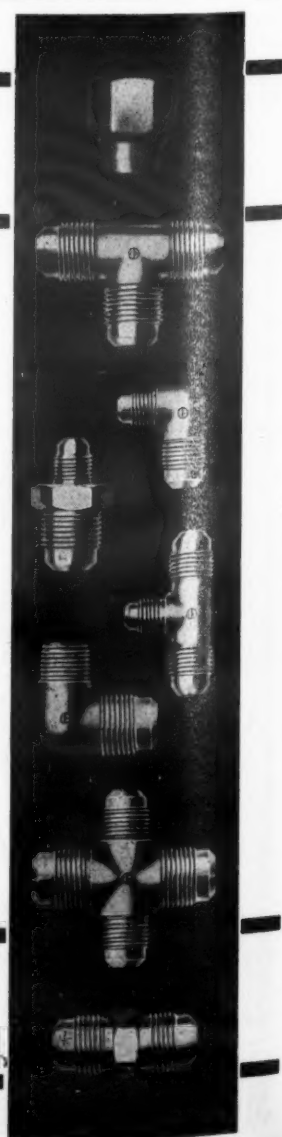
"BUILT RIGHT—TO STAY TIGHT"

EVER since the first automatic refrigerator was placed on sale we have supplied the needs of this industry for tube and pipe fittings. Thoroughly familiar with its exacting needs, we have developed the most complete line of fittings for this business and carry adequate stocks of all designs. In addition, we manufacture special fittings to sample, blueprint or sketch. Our hot forged brass fittings are seepage-proof; accurately machined and packed so that nicking and marring of tube seats is eliminated.

Send for  
Catalog No. 36

COMMONWEALTH BRASS CORPORATION

Commonwealth and G. T. R. R.  
DETROIT, MICH.





## G. E. DROPS CURTAIN ON SPRING SALES MEETING

Cleveland, Ohio—Closing a series of regional spring sales conventions, held in a half hundred leading cities of the country, P. B. Zimmerman, general sales manager of the General Electric Company, declared that the sales force has a combined responsibility and opportunity, and that he looked to sales representatives to make this the biggest year in electric refrigeration. His address was before 600 representatives of the Cushman Refrigeration Company, Cleveland, and the Willis Company, Akron, which staged a joint convention at Hotel Cleveland here.

"We have a responsibility to the people back in the factory," he said. "And those people back there realize what you salesmen are doing. They know that it is the salesman who makes for quantity production and keeps the factory running. They know it is the salesman who is the most economical factor in the organization."

"We look to the sales group for increased business because we know that our product is sold and not bought. Analyzing last year's sales, we find that nine out of ten sales were created by the salesman. However fine the merchandise may be, however extensive the advertising and sales promotion, however attractive the dealers' stores—in the final analysis it's up to the salesman. The selling job, and, indirectly, the matter of keeping factory production up to new high marks, is the salesman's responsibility."

"Now, as to the opportunity. Ours is a new business, comparatively. Our opportunities for increased business are unlimited. And for the men who will be creative, who will develop with the business, there are unlimited opportunities. Any man who makes up his mind, and who will apply himself diligently, can cut out his own job."

"In April we must set a new record for all time, and from the way orders are coming in, I know we will do it. A million dollar business daily is the April goal."

"Fifty per cent of the families in this country could employ refrigeration overnight if we only had an opportunity to tell them all our story. The market is there, and we have the product. It's only a question of getting our story to them."

Another speaker at the Cleveland convention banquet was E. C. Cobb, of the commercial department, Ohio Power Company, Canton, O., who declared he was sold on the General Electric refrigerator as a profit maker, first, for the housewife or user; then, as a profit maker for the utility company doing a merchandising business or the dealer, and as a profit maker for the salesman. Mr. Cobb was one of one hundred utility men attending the banquet, practically every city in northeastern Ohio being represented.

Following his talk, Dr. George W. Allison, of Chicago, sales psychologist, addressed the gathering. He declared that he had had a General Electric refrigerator in his home for three years and

that the only thing ever done to it was to defrost it.

"I have never attended a sales convention that inspired me as this one today has done," he asserted. "It has been unique in the method of presentation and the enthusiasm has been at high pitch."

"There is one main reason for success and that can be summed up in one word: 'Work.' The average salesman—and I know thousands of them—is honest, he is ambitious and he wants to work. But most of us do not know how to work—don't know how to boss ourselves. A salesman must be able to boss himself, because it is so easy to shirk."

"The thing to do, if a salesman is to be successful in an outstanding way, is to first plan your work. Sit down and figure out whom you will call on for the day. Do that the day before and then the first thing the next morning start out and carry through that program. Know where you are going. Have a definite schedule. Stick to it."

The Cleveland convention was the largest in point of attendance ever held. It included, in addition to photophone presentations of selling ideas, talks by W. E. Landmesser, commercial division manager; J. J. Donovan, apartment house division manager; C. O. Hamilton, of the sales promotion division; A. L. Scafe, of the merchandising service division; P. C. Wagner, district representative; John H. Walker, of General Contract Purchasing Corp., and others. Fred Cushman acted as chairman of the convention sessions and Dan Willis as banquet toastmaster.

## NORGE SIGNS UP NEW MICHIGAN DISTRIBUTOR

Detroit, Mich.—The Michigan Terminal Warehouse Corporation has been made distributor in Michigan for Norge Refrigeration. The new connection will be known as the Norge Distributing Corporation. New quarters have been obtained in the Michigan Theatre Building, Detroit. C. B. Yost takes over the duties of sales manager, under Wellington F. Evans, president of the Michigan Terminal Warehouse Corporation, as president and general manager of the Norge Distributing Corporation.

According to Mr. Evans, a finance company to handle Norge paper and time sales is already organized. New retail outlets are under contract and the extensive distribution facilities possessed by his corporation will be immediately available for the sales and service of Norge refrigeration.

Mr. Evans is enthusiastic about Norge possibilities. "I have been looking for refrigeration of the kind I would care to handle for a good many years, and have been watching the progress made by the leaders," says Mr. Evans. "I chose Norge primarily because I consider it far and away the best refrigerator mechanically. The Norge Rollator, to my mind, is the simplest, sturdiest type of compressor so far developed."

"Perhaps one of the most striking proofs of Norge efficiency is the so-called Norge Marathon unit," is the opinion of

Mr. Yost. "This machine has already operated day and night without ceasing for the equivalent of ten years in regular use. When it was inspected a few weeks ago it showed no signs whatever of wear, needed no adjustments, and was actually performing 15 per cent more efficiently than it did when it first started running."

Associated with Mr. Evans in the distributing organization for Norge are Robt. McB. Grindley, John L. Lovett, Elver L. Rice, H. F. Faber, E. E. Keller, Edward A. Lovely, Hal. H. Smith, and Walter F. Tant.

## BANKS ADVANCED BY KELVINATOR BRANCH

New York, N. Y.—John W. Banks, has been appointed retail domestic sales manager of the Kelvinator branch here.



John W. Banks

Mr. Banks has had wide experience in sales direction, having recently resigned as general manager of the Graham-Paige branch at Newark, N. J.

## UNIVERSAL COOLER GETS 50 NEW DISTRIBUTORS

Detroit, Mich.—G. M. Johnston, president of the Universal Cooler Corporation, announces that the company has just closed a contract which provides his company with over 50 new and established distributors all over the world, and opens to it a new field in furnishing equipment for marine installations, such as yachts, power-boats, etc. This contract was awarded Universal Cooler Corporation by one of the country's largest manufacturers and distributors of ammonia refrigeration equipment and the local company will be called upon to furnish all of the distributors' requirements in this field.

## MODEL HOME EQUIPPED WITH G. E. UNIT

A NEW model home recently opened in Rochester, N. Y., was equipped with a General Electric refrigerator built into its well designed kitchen.

About twenty-five thousand people, including a large number of architects and contractors, visited the model home. Fred P. Tosch, Inc., were the builders, and the Rochester Democrat and Chronicle sponsored the home, under the auspices of the Home Owners, Inc.

## LONDON FRIGIDAIRE HAS BIG OUTDOOR SIGN

London, England—Opening gun in the new outdoor advertising campaign started by Frigidaire, Limited, in England is the erection of a huge 70 by 9 foot sign on a bridge crossing the new London-Oxford arterial highway. This big sign, first of its kind to appear in England, can be seen by motorists traveling in both directions, and it is visible for nearly a mile. It is estimated that Sunday motoring crowds which will use this new road will number as high as 7,000 motorists.

## TIME-O-STAT N. Y. OFFICE IN NEW QUARTERS

New York, N. Y.—The branch office of the Time-O-Stat Controls Co. was recently moved to new quarters at 422-25 Bartholomew Bldg., 205 East 42nd St.

## Electrical Refrigeration Efficiency

is assured with

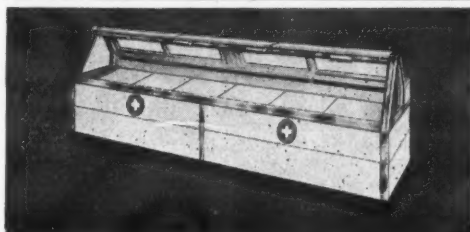


## Wirfs PATENTED "AIRTITE" GASKET

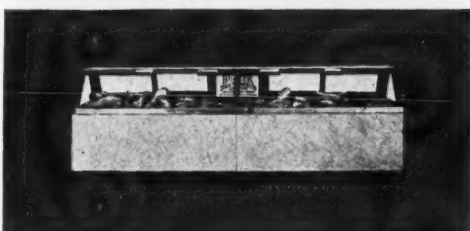
Improves the efficiency of door contacts on wood or metal boxes and decreases operating costs—a valuable economy talking point for salesmen.

**WIRFS CORPORATION**  
135 S. 17th St. St. Louis, Mo.

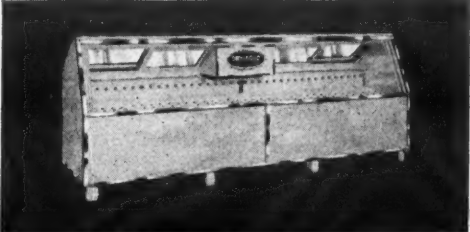
Monel Metal trimmed display case, manufactured by HARRY L. HUSSMANN REFRIGERATOR CO. of St. Louis, Mo.



"The Master" spray refrigerated counter, Monel Metal lined and trimmed. Manufactured by BLAZEK & CO. of Chicago, Ill.



Monel Metal trimmed Perfection Display Refrigerator, manufactured by THE "DRY-KOLD" REFRIGERATOR CO. of Niles, Mich.



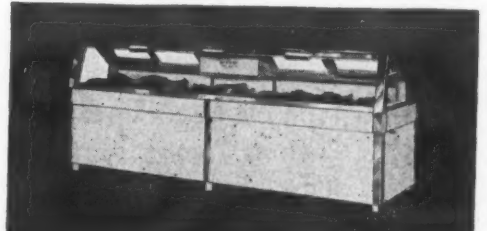
## Monel Metal Trim

helps sell modern display cases!

EVER since mechanical refrigeration first gave impetus to the sale of store display cases, Monel Metal has been the most popular material for trim and bright work. Leading manufacturers have adopted this lustrous Nickel alloy because it affords a remarkable combination of desirable properties.

Monel Metal CANNOT rust. It resists corrosion. It has no coating to chip, crack or wear off. The silvery appearance of Monel Metal is permanent. It can always be kept bright and fresh-looking with very little cleaning. Specify Monel Metal trim for your new display case.

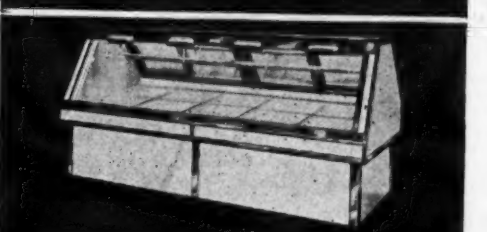
Monel Metal trimmed store display refrigerator manufactured by McCRAE REFRIGERATOR SALES CORP. of Kendallville, Ind.



Display case with Monel Metal trim, manufactured by OTTENHEIMER BROS., INC. of Baltimore, Md.



"Thesco" Monel Metal trimmed display case, manufactured by THE C. SCHMIDT COMPANY, Cincinnati, Ohio.



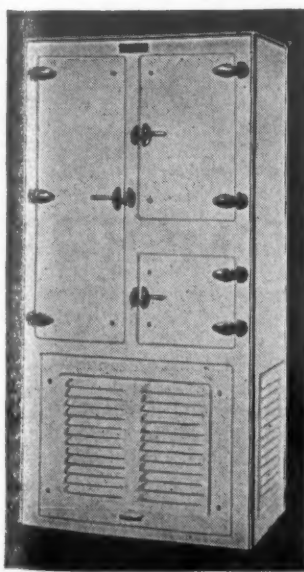
## MONEL METAL

Monel Metal is a technically controlled Nickel-Copper alloy of high Nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company, Inc. The name "Monel Metal" is a registered trade mark.



THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

## "It was built by BOHN"



The handy base cabinet may either be used for refrigerating machinery or the storage of cooking utensils, canned goods, vegetables, etc.

The name BOHN is our warranty that the finest materials obtainable have been utilized by skilled craftsmen and refrigeration engineers to build for you this beautiful and scientific product—an all-porcelain BOHN refrigerator.

BOHN installations include many of the leading hotels, restaurants and hospitals in America.

BOHN refrigerators are used exclusively on all Pullman-built railway dining and buffet cars.

The United States War Department has purchased hundreds of all-porcelain BOHN refrigerators for our army barracks and battleships.

In choosing BOHN refrigerators, discriminating home owners throughout the country have given BOHN a representative list of which any manufacturer might be proud.

Write for details of the remarkably low prices that are now prevailing.

**BOHN REFRIGERATOR COMPANY**  
SAINT PAUL, MINNESOTA



## Véase la página 12

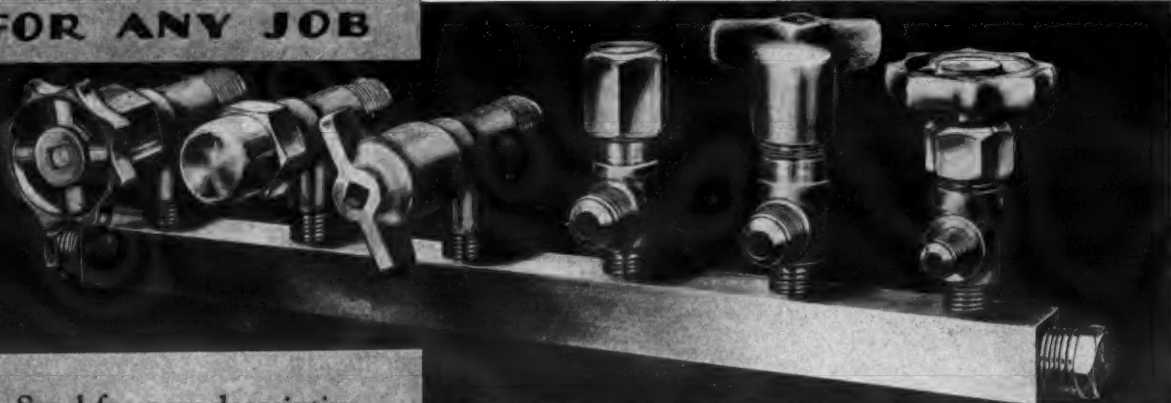
COMPañÍA MARKWELL

### VALUABLE INFORMATION

"We always look forward to receiving the copies of the NEWS, for they contain valuable information in the field of electric refrigeration."—Harold Login, Montgomery Engineering Company, Jersey City, N. J.

## KEROTEST MANIFOLDS

ARE READY FOR ANY JOB



Send for new descriptive catalog covering Kerotest manifold valves and fittings—just off the press.

**KEROTEST**

Equipped with any style of seal caps you may specify or with packless valves if you so prefer. A wide choice for your every specification.

**KEROTEST MANUFACTURING CO.**  
Pittsburgh, Pa.

# The 75 Bulbswitch

## the ideal control for freezer cases!



The No. 75 Bulbswitch operates from a metal bulb inserted in the cold tank or chamber, connected by a flexible copper tube to a bellows and mercury switch unit mounted several feet away. Thus the operating unit is safe from corrosion, easily adjustable and occupies less valuable space.

THE 75 Bulbswitch is a sturdy, sensitive, remote temperature control for either air or brine. It is specially designed to maintain even low temperatures in freezer cases, soda fountains, butcher's coolers, and similar commercial installations—in which the operating mechanism should be mounted away from the cold compartment or tank.

Because of its sturdy construction the No. 75 Bulbswitch handles a full horsepower load direct—without a starter. It is simple, compact, and extremely dependable in operation. It is adjustable from the outside and can be easily installed.

The No. 75 Bulbswitch is an important item in Time-O-Stat's extensive line of refrigeration controls... All have been developed in Time-O-Stat's research laboratories. They form the most dependable line of automatic controls in the refrigeration industry... Our engineering department is always at your service to work out any individual control problem.

For information on these products—write or wire us today.



**TIME-O-STAT**  
CONTROLS COMPANY  
ELKHART, INDIANA

Branch Offices and Exclusive Distributors in all principal cities of the United States  
Canadian Distributors—Toronto and Montreal.

Manufacturers of AUTOMATIC CONTROLS for Oil Burners — Gas Burners — Coal Burners — Electric Refrigerators — Furnace Fans — Mechanical Stokers — Industrial Ovens — Ice Machines — Unit Heaters . . . . . also of Sign Flashers — Mercury Switches — Electric Heaters — Corrugated Metal Bellows.

## FISH WILL ENJOY LIFE IN CHICAGO'S AQUARIUM

Chicago, Ill.—Refrigeration equipment combined with heating equipment will keep the temperature of the water in the 132 glass-fronted tanks in the walls of the 6 main exhibition halls in the new John G. Shedd Aquarium in Grant Park at constant temperatures the year around. How warm or cold the water in each tank will be can be regulated by automatic thermostats so that tropical fish from warm, shallow waters will feel as much at home as the strange specimens from the cold, lightless waters of the deep seas. Without modern, automatic refrigeration for the water it would not be possible to keep many rare specimens alive and healthy, fish that may cost up to \$1,000 apiece.

The right temperature is vital to the health of all fish; moreover, many of the rarer specimens feed upon microscopic organisms in the water which will not grow or propagate except under natural conditions. Certain benign bacteria which act rather as do sunlight and vitamins on humans, must be present to keep the fish healthy, and these demand a steady temperature.

A fleet of 125 tank cars will bring unpolluted sea water to the monumental aquarium building, to be stored in basement tanks holding 1,000,000 gallons, another 1,000,000 gallon set being devoted to fresh water. Heating and refrigerating coils will run through these reservoirs and from them to the exhibition tanks; non-corrosive pipes will circulate the water slowly, carrying oxygen, food organisms and friendly bacteria to the finny guests.

The refrigerating compressors are of the centrifugal type invented by Willis H. Carrier of Newark, N. J., former president of the American Society of Refrigeration Engineers, who designed the installation, which is the first of its sort in the world to be placed in an aquarium. The cooling capacity each 24 hours is equal to the melting of 2,450 tons of ice, or enough to supply 26,000 families with 25 pounds of ice a day. It will cool 150 gallons a minute of salt water through a 20-degree reduction of temperature and 125 gallons a minute of fresh water through 30 degrees. It also keeps the air in the refrigerator chambers in which food for fish fed by hand will be stored at 28 degrees Fahrenheit. Cooling of the water in the basement storage tanks is indirect, by circulating refrigerated water through submerged coils.

The Shedd Aquarium building is now complete and specimens are being gathered by Director Walter H. Chute and his staff. Every fish native to American fresh and coastal waters will be shown, plus many exotic and rare fishes, part of which will be collected by special expeditions to the Seven Seas. The \$3,000,000 gift of the chairman of the Board of Marshall Field & Company gives Chicago two aquaria, the other being in Lincoln Park.

There are only eight others in the United States. The one in Battery Park, New York City, is the most popular public institution in the world, having averaged 5,000 visitors a day for the last twelve years.

## STORZ REPORTS LARGE APARTMENT SALES

Omaha, Nebr.—Storz Electric Refrigeration Co. of Omaha has just completed the installation of twenty-two General Electric refrigerators in the Tudor Arms apartment house. The G-55 was used on this job, which was for \$5,300. In addition to domestic equipment installed, the Methodist Hospital in Omaha has been fully equipped with G. E. machines. A C-450 and C-600 were used in the kitchen and two G-75 models, two G-40 models and five G-55 models were placed for general laboratory uses. Two bottle coolers and one special cooler were also a part of this job.

## NEW WHOLESALE JOBBING HOUSE

Chicago, Ill.—A newcomer in the general merchandising field is Associated Industries, Inc., of Chicago, a wholesale jobbing house, which will distribute a wide range of merchandise, including house furnishings, electric appliances, electric refrigerators and washing machines, sporting goods, tires, automobile fabrics, radios, ranges, silverware, etc. The general offices, warehouse and salesrooms are located at 1222 S. Michigan Avenue, Chicago, Illinois. E. J. Stewart is president.

## SOUTH BEND UTILITY IN NEW BUILDING

South Bend, Ind.—Indiana and Michigan Electric Company has moved into a fine new building. General Electric refrigerators and Hotpoint ranges are displayed and sold. O. B. Johnson is the new business manager.

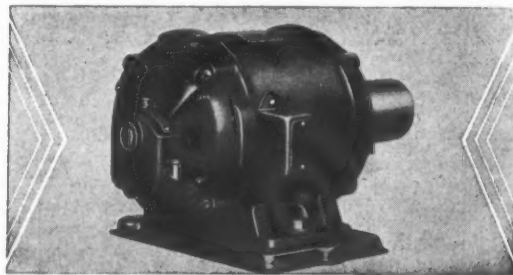
## CARLETON S. SMITH IS NEW COPELAND TREASURER



Carleton S. Smith

Former comptroller and assistant secretary-treasurer of Copeland Products, Inc., who has been named secretary and treasurer of the company.

## THEY KEEP A-RUNNING



1/4 Horse Power Century Type DM Direct Current Motor

## DIRECT CURRENT MOTORS

Century Type DM Direct Current Motors give the same continuous satisfactory service that has characterized Century Type RS Single Phase Motors for the past 26 years... "They Keep a-Running" under such exacting service as oil burners, pumps, electric refrigerators, compressors and similar apparatus. They withstand the dampness frequently surrounding installations in basements and humid, tropical climates... Built in standard sizes in this type from 1/6 to 1/2 horse power, at speeds corresponding to standard speeds of A. C. motors.

Mountings of Century Direct Current Motors are interchangeable with those of Century Single Phase Repulsion Induction Motors.

**CENTURY ELECTRIC COMPANY**  
1806 PINE ST. • ST. LOUIS, MO.

40 U. S. and Canadian Stock Points and More than 75 Outside Thereof



FOR MORE THAN 26 YEARS AT ST. LOUIS



## Four Managers Take Charge of Copeland's New Zone System



Ralph W. Jones

George R. Pizarro

**Mt. Clemens, Mich.**—Following a nation-wide business survey and series of sales schools by Vice-President W. D. McElhinny, in charge of sales of Copeland Products, Inc., the company's new national distribution system has been placed in operation, with the four managers in charge of the regions in which the country has been divided taking over their new duties in their respective territories.

Copeland's regional and zone system supplements its factory branch system in the key cities of New York, Chicago and Detroit, and its export division under the H. M. Robins Co. of Detroit.

George R. Pizarro is in charge of the

West Coast region, with headquarters in San Francisco. Three zones operate under his jurisdiction, in Salt Lake City, Seattle and Los Angeles.

Ralph W. Jones takes over the Southwest region, with headquarters at Dallas and zone centers at Oklahoma City, Kansas City and Houston.

R. P. Scott is in charge of the Central region, with headquarters at Columbus and zones in Indianapolis, Middletown, Ohio, and Cleveland.

The Eastern regional manager is Frank T. Williams, whose headquarters are in Washington. Zone points are in Boston, Springfield, Mass., Philadelphia and Norfolk, Va.

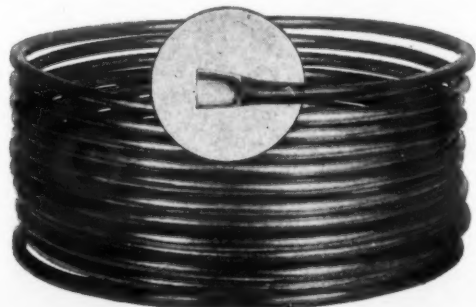


Frank T. Williams

R. P. Scott

## DEHYDRATED WOLVERINE SEAMLESS COPPER TUBING

Highest quality seamless copper tubing—perfectly dehydrated and solder-sealed—made to A. S. T. M. Specifications (B 68-27T)—ready for quick installation. Send your production requirements for quotations—or wire for rush shipment from stock.



**WOLVERINE TUBE CO.**

SEAMLESS COPPER BRASS & ALUMINUM

1431 Central Ave.

Detroit, Mich.

Phone Cedar 5000

Sales offices in all major cities. Write or phone for name of nearest representative.

# March was the Greatest Month in KELVINATOR History!

*All records shattered with greatest month's shipments in 16 years—nearly three times as large as FEBRUARY*

**E**ACH succeeding month of Kelvinator's 1930 fiscal year has shown a substantial increase over corresponding months of last year. And now March shipments eclipse all previous records—nearly three times greater than those of February—making March the greatest month in 16 years of manufacturing.

These facts hold a special significance for all electric refrigeration dealers. They mean that with April, May and June just ahead—normally the largest months in electric refrigeration sales—Kelvinator is pointed toward the greatest achievements in its history.

These figures mean that the new Super-Automatic Kelvinators, with their Automatic Fast Freezing, Cold Storage Compartment and other exclusive features, are convincing

thousands of buyers that the wisest investment in electric refrigeration is Kelvinator.

Backed by the prestige of the oldest and greatest name in electric refrigeration—with the greatest advertising and sales promotion program in Kelvinator history—the Kelvinator franchise offers a selling opportunity without a parallel. Complete information on the Super-Automatic Kelvinators—in three price ranges—can be had upon request.

### These Exclusive Kelvinator Features are Winning Prospects Against the Field

1. **Wholly Automatic Operation**—Four refrigeration services in a single refrigerator—each automatic and independent of the others.
2. **Automatic Super-Fast Freezing**—the World's Fastest Freezing—Kelvinator's exclusive device—Iso-Thermic Tubes—gives the fastest freezing on record for a domestic refrigerator.
3. **Cold Storage Compartment**—Kelvinator alone provides a cold storage compartment, with below-freezing cold for keeping all the new frozen and frosted foods, as well as fresh meats, fruits, vegetables, game and fish.
4. **Greater Ice Capacity**—Size for size, the de luxe Kelvinators have a greater ice capacity than any other electric refrigerator.

**KELVINATOR SALES CORPORATION, DETROIT, MICH.**

**KELVINATOR OF CANADA, LIMITED LONDON, ONTARIO**

**KELVINATOR, LIMITED, LONDON, ENGLAND**



## ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

Published Every Two Weeks by

BUSINESS NEWS PUBLISHING CO.

550 Maccaebes Building, Woodward Avenue and Putnam Street  
Detroit, Michigan. Telephones: Columbia 4242-4243-4244

Subscription Rates:

United States and Possessions: \$2.00 per year; three years for \$5.00  
All Other Countries: \$2.25 per year; two years for \$4.00

Advertising Rates on Request

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Phone Lexington 9113

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Vol. 4, No. 16, Serial No. 92

April 9, 1930

## Far Ahead of Last Year

THE showing made by the electric refrigeration industry in the first quarter of 1930 makes exceedingly pleasant reading. At a time of economic dullness, when many other industries are content to hold their own, our industry has forged steadily forward. Sales for the first three months of this year are far ahead of those of the corresponding period last year, and there is no sign of a letup. It looks as though the refrigeration industry had completely missed the news of the Wall Street crash.

As a matter of fact, most of the sales quotas for 1930 were planned before last October, and the fact that they are being maintained indicates that the men who set them knew what they were doing. Quotas were based upon accurate information in regard to such factors as the number of wired homes, power consumption, and other statistics collected by the electrical industry. Facts, not guesses, formed the foundation on which the 1930 quotas were built.

Then, too, there is a popular enthusiasm for the electric refrigerator that seems to gain in power as the years go on. The public is convinced that the mechanical refrigerator is a desirable thing; more than that, is almost a necessity. No landlord attempts to rent an apartment these days unless it is equipped with electric refrigeration. He runs the risk of hearing his building referred to as a tenement if he sticks to the old fashioned ice box. The man who is building a home plans to have an electric refrigerator as a matter of course. His only problem is to decide which one to buy.

Visible evidence of the popularity of the electric refrigerator is provided by three illustrations in this issue of the News. On the first page is a photograph showing a throng of eight hundred women in Hibbing, Minnesota, attending a domestic service demonstration, at which an electric refrigerator played a prominent part. On page eleven there is a throng filling every inch of space in the showroom of the Broad River Power Company in Columbia, South Carolina. In three days fourteen thousand women visited the Broad River Company's showrooms to see the new refrigerators that had just been put on display. Photographs like these bear witness to the popularity of the electric refrigerator.

On this page is a third illustration which shows the signs of the times. And those signs promise prosperity to the electric refrigeration industry.

All this public acceptance, with its resulting volume of sales, has not just happened. It has been accomplished by hard work. The industry has not always been riding high. It has had its bad times and has learned its lessons. Hard work and clear thinking are leading the industry to new heights. May they continue to carry on.

## What the Future Holds

A REFRIGERATOR, after all, is but a means to an end. Those who make and sell refrigerators are naturally intensely interested in matters of design, material and construction, but the man who buys and uses a refrigerator usually confines his interest to what the machine will do. He thinks of it as a preserver of food, as an aid to health.

Because of that fact there has been an inevitable drift to discussions of food rather than of machines in the last few years. The columns of ELECTRIC REFRIGERATION NEWS have reflected that drift in the course of reporting the news of the industry. The up-to-the-minute refrigerator salesman talks food instead of refrigerators.

The Refrigerated Food section of the News, which began with the last issue, will serve to give even greater emphasis to foods. It will find its way outside the limits of the refrigeration industry, make contacts with the consumer, and bring back to the industry, news of what the producers and distributors of food products are asking the industry to do.

So far as quick-frozen foods are concerned, it is working in exactly that manner at the present time. The producers of quick-frozen food are ahead of the refrigeration industry just now. They are demanding equipment for handling their products that the refrigeration industry alone can furnish. A splendid beginning has been made, but it is only a start. The Refrigerated Food section will help to keep the line clear until the job is finished.

The quick-frozen food situation is mentioned only as an example of what can be done. Other similar tasks will appear, and the Refrigerated Food section will have plenty to do for a long time to come.

## "Life's" View of Refrigeration



Eliza in "Uncle Tom's Cabin," when there's no more ice.

## CORONERS ASSOCIATION APPROVES KEGEL CODE

ON July 18, 1929, the National Association of Coroners, acting through its president, appointed the undersigned as a committee to study the problems involving the hazards of mechanical refrigeration and directed them to compile a report dealing with the life and health hazards involved and to submit recommendations relative to the removal of these hazards. This committee thereupon made a careful and exhaustive study of the problems involved, and does now ask leave to submit to the public its report dealing, first, with the hazards presently involved respecting the installation and operation of mechanical refrigerators as affecting life and health, and secondly, making such recommendations as it deems proper with a view of removing the hazards involved.

The committee at this time desires to express its appreciation to Dr. William D. McNally, of Chicago, Ill.; Dr. Arnold H. Kegel, Commissioner of Health of Chicago; and Dr. Godfrid Kohler, Deputy Commissioner of Health of Chicago, for the co-operation given them and for the data which was used by them in considering the subject matter involved, with a view of ultimately completing their report. Appreciation is likewise extended to William B. Rubin and Winifred C. Zabel, attorneys of Milwaukee, Wisconsin, for assistance accorded the committee dealing with certain legal problems that presented themselves during the course of your committee's deliberations.

Your committee asks leave to report that in reference to the matter of methyl chloride, and other non-odorous gases, having a toxic effect and being a hazard jeopardizing the life and health of human beings when used as a refrigerant in mechanical refrigerators with the possibility of escaping, that it is satisfied that the use of such gas should be discontinued unless there be added to it a tracer gas of an odorous character.

Your committee further finds that sulphur dioxide when used as a refrigerant has a decided toxic effect and may be detrimental to the health and life of a human being when it is permitted to escape from a mechanical refrigerator. Therefore, your committee recommends that exceptional precaution be taken to safeguard the health and life of humans where sulphur dioxide is used as a refrigerant gas, in respect to the proper installation of piping and coiling of the refrigerating plant, particularly so because of the high corrosive effect that sulphur dioxide has upon all metals, excluding copper.

Your committee also desires to emphasize the fact that methyl chloride, sulphur dioxide, ammonia, and other similar substances, when used as refrigerants, have a decided ill effect in the contamination of food stored in refrigerators in the event of a leak of these gases within the refrigerator compartment.

Your committee further desires to emphasize the fact that while in the majority of instances brought to our attention, the death of persons involved was occasioned primarily by the escape of refrigerants known as methyl chloride that nevertheless other escaping gases have been discovered where health was seriously jeopardized because of their escape from refrigerators, notably sul-

phur dioxide and ammonia. It is also the opinion of the committee that in all probability life and health in the past have been jeopardized to a larger extent than is actually known, due to ignorance of the true situation existing in the majority of cases; the actual cause of death was, no doubt, overlooked, as the cause of death was attributed to conditions other than those which in truth and fact were the direct contributing factor.

In respect to the proposition of determining and recommending the safest method of installing and operating mechanical refrigerators so as not to jeopardize human life and health, your committee asks leave to submit the following:

We believe that the so-called "Kegel Ordinance" introduced and now pending for consideration by the Common Council of the city of Chicago, would most effectively minimize the hazards that are incidental to mechanical refrigeration, for the reason that said ordinance constitutes a yardstick by which the industry can be guided in providing equipment that will not be detrimental to health.

We are particularly impressed with the ordinance in question, primarily because of the fact that said ordinance in effect placed with the Commissioner of Health the supervision of the installation and operation of mechanical refrigerators, thereby giving primary consideration to the health element involved in the operation of mechanical refrigerators to the extent that it gives secondary consideration to the mechanical feature involved in properly regulating the installation and operation of mechanical refrigerators.

In conclusion, we respectfully submit that an ordinance similar to the so-called "Kegel Ordinance" be given primary consideration as a standard measure to be adopted uniformly by the various municipalities throughout the nation.

Respectfully submitted,

P. J. ZISCH, Chairman.

DR. A. A. WATTS,

Coroner, Gary, Ind.

DR. J. D. CANTWELL,

Coroner, Davenport, Iowa.

DR. A. L. FRENCH,

Coroner, Detroit, Mich.

DR. A. J. PEARSE,

Coroner, Cleveland, Ohio.

## LOTHROP HEADS NEW KELVINATOR DEPT.

Detroit, Mich. — A new department known as the Systems and Statistical Department, has been established by the Kelvinator Corporation, with E. W. Lothrop as manager. Mr. Lothrop is thoroughly familiar with the requirements, having headed a similar department with Graham-Paige Motors Corporation for seven years previous to joining Kelvinator.

## FURNITURE COMPANY TO SELL FRIGIDAIRE

Ansonia, Conn. — The Ansonia Furniture Co. has been appointed by the Derby Gas Co. of Derby, Conn., as local representative for Frigidaire products. The Derby Gas Co. held the Naugatuck Valley agency for several years, but in order to better facilitate sales and distribution has named the local company agent.

## FOREIGN SHIPMENTS OF ELECTRIC REFRIGERATORS

February Exports Reported by Bureau of Foreign and Domestic Commerce

	Electric Household Refrigerators		Electric Commercial Refrigerators Up to 1 Ton	
	No.	Val.	No.	Val.
Azores and Madeira Islands	2	\$ 500	...	...
Belgium	85	16,883	8	\$ 1,427
Czechoslovakia	1	280	...	...
Denmark	2	440	26	4,070
Finland	24	3,130	6	634
France	...	...	126	22,158
Germany	85	19,479	...	...
Gibraltar	7	3,204	...	...
Hungary	4	365	...	...
Italy	77	13,485	16	1,959
Netherlands	81	11,037	14	2,237
Spain	15	3,644	21	9,938
Switzerland	74	14,294	78	8,875
United Kingdom	627	83,083	76	10,408
Canada	369	78,737	251	52,110
Guatemala	5	704	4	987
Honduras	2	713	...	...
Panama	49	14,642	3	995
Salvador	1	65	...	...
Mexico	5	2,323	1	800
Bermudas	1	345	...	...
Barbados	1	401	...	...
Trinidad and Tobago	7	1,439	...	...
Other British West Indies	3	710	...	...
Cuba	91	18,886	1	137
Dominica	1	167	...	...
Netherlands West Indies	1	385	...	...
Argentina	52	8,320	...	...
Brazil	122	13,255	39	7,792
Chile	20	4,229	...	...
Colombia	12	1,629	4	570
Ecuador	1	475	...	...
Peru	24	3,861	11	1,943
Uruguay	20	2,456	...	...
Venezuela	40	6,937	8	753
British India	350	58,229	6	688
British Malaya	67	13,505	1	120
Ceylon	7	1,411	...	...
China	73	13,877	...	...
Java and Madura	23	4,806	...	...
Other Netherlands East Indies	13	2,620	...	...
French Indo-China	4	589	...	...
Hong Kong	12	2,507	4	1,058
Japan	72	12,922	2	400
Philippine Islands	2	128	...	...
Turkey	15	2,098	10	1,421
Australia	133	21,992	355	29,376
New Zealand	9	1,809	1	450
British East Africa	17	3,716	...	...
Union of South Africa	234	65,706	5	910
Algeria and Tunisia	...	...	1	115
Morocco	15	2,727	4	960
Mozambique	3	672	...	...
Total	2,960	\$539,817	1,079	\$163,491
Shipments to Hawaii	114	\$ 24,319	11	\$ 3,305
Porto Rico	19	\$ 3,936	2	\$ 944

## GAFFIT ELECTRIC CO. IS COPELAND DEALER

On page 8, Section 1, of the March 26 issue of the News, announcement was made of a new dealer in Ansonia, Conn. The editorial correspondent in that territory erred when he stated that the Gaffit Electric Co. had taken on the Kelvinator line. This company is a new Copeland dealer and operates under the New Haven Electric Co., New Haven, Conn.



# AIR COOLING.

- for the DRUG STORE, the RESTAURANT, the CANDY STORE, the BEAUTY PARLOR, the BARBER SHOP . . . and a hundred similar businesses . . . where the owners have felt the PINCH of POOR BUSINESS in the HOT, HUMID days of summer.
- for the HOME, the OFFICE, the CLUB . . . where people have sought COMFORT in the HOT, HUMID days of summer.
- and De-humidifying at a PRICE within the reach of the AVERAGE store owner . . . the AVERAGE home owner.
- by the PEERLESS COOLING Fan, in which the refrigeration is produced by an ice machine with 17 years of experience behind its construction . . . an ice machine that can be turned on May 1st, and turned off October 1st, without a shut-down for repairs . . . an ice machine that will measure up to the heaviest load that can be placed upon it and "come up smiling" . . . an ice machine with AIR-COOLING capacity.
- in "package" form, requiring no more work to install than a household ice machine.

Engineers have predicted "the time will come when cooling in the summer time will be as universal as heating in the winter time."

If your future is in the ice machine business, you are vitally interested.

WRITE or  
WIRE

PEERLESS ICE MACHINE COMPANY  
515 WEST THIRTY-FIFTH STREET . . CHICAGO, U. S. A.



The PEERLESS Cooling Fan  
(Pedestal Type)

For use in restaurants, drug stores, etc. Will deliver a cool, dry breeze 20 to 30 feet. All ice machine and wiring connections carried through pedestal. Water extracted from air carried through special drain pipe in pedestal.

The PEERLESS COOLING FAN is fully protected by patent applications. It is manufactured in four general types, pedestal mounting (illustrated), wall bracket mounting, ceiling suspension, and wall-insert mounting—a type to fit any application. Unit illustrated takes full capacity of one ton ice machine. Units can be connected in multiple with single ice machine in larger installations.



## CLOSER COOPERATION IS PLANNED BY HOUSTON MEN

Houston, Tex.—Organization of the Houston Society of Refrigeration Equipment Dealers, and election of W. W. Short, general manager for Cox & Blackburn, Frigidaire distributors, as president, was effected at a meeting held in the offices of Cox & Blackburn recently. Other officers elected to serve with Mr. Short were: L. C. Way and D. C. Lingo, vice-presidents; N. Calvert, treasurer, and V. F. Houston, secretary. Members of the new society attended a dinner at the Bluebird Inn on April 1, as guests of E. A. Blackburn.

The purpose of the new organization is for the mutual benefit to the refrigeration industry in Houston, and is designed to permit closer co-operation, promote harmony and discussions, and solutions of refrigeration problems common to the industry.

Those attending the meeting were: L. C. Way, Way Engineering Company, Lipman distributors; G. W. Cornwell, General Heating and Appliance Company, Ice-O-Matic distributors; Fred Gray, Jr., Star Electric Company, Servel; I. W. Bartholomew, Zerozone Houston Company; A. W. Stubeeman, York Ice Machinery Company; B. A. Marriner, Rice-Day Sales Company, Copeland; N. Calvert, Kelvinator; D. C. Lingo, Southern Engine & Pump Company; O. M. Hughes, Frigidaire Corp. of Dayton; E. A. Blackburn, W. W. Short, V. F. Houston, H. L. Martin, Harry Twombly and B. C. Duffy, Jr., of Cox & Blackburn, Frigidaire distributors. Regular meetings will be held.

A name is solicited by astronomers for the newly discovered solar planet, on which the prevailing temperature is 350 below, Fahrenheit. Spirited rivalry among the Frigidaire and Kelvinator people is predicted.—*Detroit News*.

## Long Line of Kelvinators Dominates Shreveport Show Room



Shreveport, La.—The Southwestern Gas & Electric Company has been appointed Kelvinator distributors in all of the territory centers which it serves as a power distributor. Formerly this company handled Kelvinator sales as a sub-distributor of the W. K. Henderson Iron Works & Supply Company, wholesale distributors. To celebrate this an-

nouncement the company set up the display pictured here in its main show room. This presentation shows up the good advantages of a large array of cabinets. Commercial equipment, compressors and fin coils have a very prominent place in the display. The neat white finishes of the models lined along the wall make them stand out well.

### FRIGIDAIRE GIVEN AS PRIZE

Seattle, Wash., March 10.—A \$250 Frigidaire will again be the grand prize in a city-wide contest for the annual hooked-rug contest of the Seattle Post-Intelligencer, which will be held late in the month of May.

## VERSATILE COMBINATION FOR CALIFORNIA RANCH

FOR many years past food for the workers on the large Wahtoka Vineyard, near Reedley, Calif., was kept in a refrigerator of the "walk-in" type, having a full length door and an ice chamber with a capacity of several hundred pounds. It served its purpose well in its day, preserving perishables for as many as 100 farm hands during harvesting time. But R. Arkellian, owner of the vineyard, decided it was time to replace this equipment with a modern refrigerator. So a new 65-cubic foot General Electric commercial type refrigerator was installed, which proved quite satisfactory in the preservation of food. There was one drawback, however, which almost caused Mr. Arkellian to go back to the old type of refrigerator. The new commercial type has no provision for the manufacture of ice.

This deficiency was overcome in a novel manner by the refrigeration department of the Valley Electrical Supply Company, installers of the refrigerator. An additional domestic unit was set in one end of the large cabinet, providing ice in abundance during all seasons. A glass tray below the ice unit is used for storage of cubes of ice in anticipation of heavy demands.

The new "reach-in" refrigerator has five compartments, the largest being of sufficient size to hold a quarter of beef. The chamber is cooled by a thin-type refrigerator unit, which defrosts after each stop of the motor. This feature increases the efficiency of the refrigerant and in addition releases moisture in the air which eliminates shrinkage in many foods. The large unit has a one-half horsepower motor operating under 220 volts, while the smaller unit is operated with a one-sixth h. p. motor off the 110-volt service.

## Stop Motor Troubles

If motors cause any appreciable part of your service troubles, your motor does not fit the job. Wagner has pioneered small motors from the beginning and is still doing it. Recent Wagner developments set new standards of efficiency, quietness, power-factor and general serviceability. Check your strictest motor requirements with the latest Wagner motor performance.



**Wagner,**  
**Quality**

Consult Wagner, because Wagner builds every commercial type of a. c. motor.

Literature on Request

**WAGNER ELECTRIC CORPORATION**

6400 Plymouth Ave., St. Louis

Sales and Service in 25 Cities

PRODUCTS . . . FANS; DESK, WALL, CEILING  
TRANSFORMERS; POWER, DISTRIBUTION, INSTRUMENT  
MOTORS; SINGLE-PHASE, POLYPHASE, DIRECT CURRENT

TO MEN WHO ARE INTERESTED IN

# Making Money

WE'RE talking now about money! . . . Not just a "break-even" return for your sales efforts. But an honest-to-goodness PROFIT on the work you do! . . . Get into the Automatic Oil Burner business. Represent the Quiet MAY in your community. Scores of authorized local dealers, now operating under the May Oil Burner franchise, are cashing in handsomely on the unusual cooperation we offer . . . A financing plan to keep your money free and working. An advertising plan to keep your sales humming every month in the year . . . And, best of all, the

## QUIET MAY PROFIT SHARING PLAN

which enables you to add to your own earnings *extra profits* from the world-wide business of the May Oil Burner Corporation . . . If you're interested in *making money*, get all the facts. Your return of the coupon will bring you full information post-haste:

MAY OIL BURNER CORPORATION, BALTIMORE, MD.

MAY OIL BURNER CORPORATION  
Dept. D—Baltimore, Md.

If your dealer proposition is half as interesting as it sounds, I'd like to know more about it.

Name.....  
Address.....  
City.....State.....D49



## WOMEN BESIEGE STORE TO SEE REFRIGERATORS

THE Broad River Power Co. recently took over the distribution of Kelvinator electric refrigeration at Columbia, S. C. When Wm. E. Leverette, the company's merchandise manager, was at the Kelvinator factory he brought with him some photographs of the crowds which attended the opening. He reported that on the first day the store was opened the establishment was packed. Mr. Leverette said that 14,000 of the women of Columbia attended the opening, which lasted three days. As Columbia has a population of about 40,000, this figure is remarkable, but, of course, it includes many women from the surrounding territory. Columbia is the state capital and the center of a populous countryside.

The opening was extensively advertised, but despite the advertising the magnitude of the response was a pleasant surprise to all concerned. The store is located on the leading business street of Columbia, next door to the Ritz Theatre, the finest motion picture palace in the city. Many of the women who visited the showrooms came directly from the theatre. More than one remarked that she thought the Kelvinators put on a better show than some of the movie stars.

The entire sales force, as well as a few extras, were on hand during the three days to receive the visitors. They all wore badges and identifying caps. The crowds were so big that the caps came in handy and enabled inquirers to find the workers without difficulty.

The show windows were trimmed appropriately and brought in many passersby who otherwise might not have stopped. They helped to swell the throng.

### GOODISON NOW WELSBACH SERVICE MANAGER

Gloucester City, N. J.—E. P. Goodison has been appointed general service manager of the Welsbach Co.

## More Popular Than the Movies



A Kelvinator was the center of attraction.

### TWO CHARLOTTE UTILITIES OPEN SPRING DRIVE

Charlotte, N. C.—A sales activity featuring the new Kelvinators was started March 10 over all of the Southern Public Utilities Company and North Carolina Public Service Company territory. This Kelvinator drive will continue through May 3, and it is anticipated that before that date several hundred

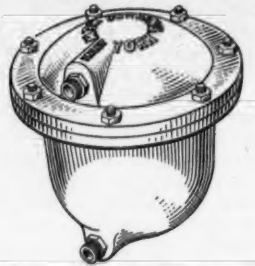
housewives in that vicinity will be enjoying life more as the result of the installation of new Kelvinators in their homes.

About \$500 in cash prizes will be distributed to salesmen during the spring drive.

### SNAPPY PAPER

"I would not want to miss an issue of your snappy, newsy, refrigeration paper."—W. J. Walker, General Manager, Banta Refrigerator Co., Clearfield, Pa.

### Buhring Water Purifiers for Electric Coolers



Easily connected to all types  
Requires minimum attention

**GUARANTEED**  
to remove taste, color and odor.  
Will operate under any water pressure.

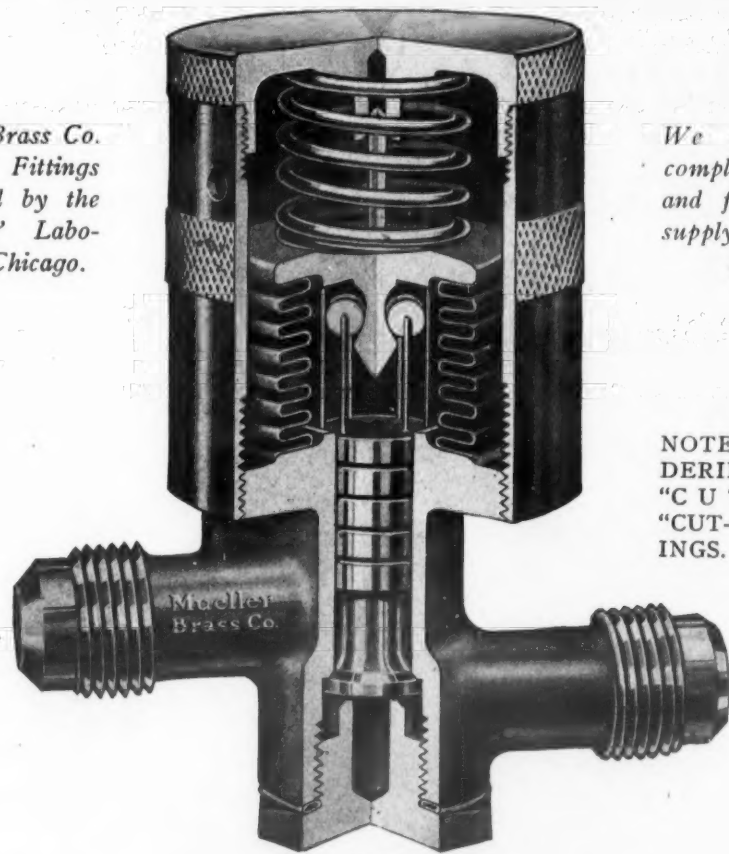
For Information Write  
**BUHRING**  
WATER PURIFYING CO.  
40 Murray St., New York City  
Representatives  
Allen Filter Co., Chicago, Ill.  
Boston Filter Co., Boston, Mass.

## Queira ver a pagina 12

COMPANHIA MARKWELL

## Mueller Two-Temperature Control Snap Valve

Mueller Brass Co.  
Valves and Fittings  
are approved by the  
Underwriters' Laboratories of Chicago.



A-11095

We manufacture a complete line of valves and fittings and can supply your every requirement.

NOTE: WHEN ORDERING SPECIFY "CUT-IN" AND "CUT-OUT" READINGS.

This valve is so constructed as to make it a real aid to the service man. By merely turning the outside knurled case he can raise or lower the temperature without danger of losing the differential which was previously properly set.

The differential is built into the valve and cannot be changed. The temperature range may be changed without the necessity of a recheck or numerous visits of the service man.

Simplicity of construction insures a long and trouble proof life. The snap action feature prevents seat erosion and assures uniform performance.

The body is a brass forging, thus making it seep proof and free from defects.

## Mueller Brass Co.

Port Huron, Michigan

THREE GENERATIONS OF BRASS MAKING



This window attracted much attention during the opening.



### SILENCE

is golden when it comes to electric refrigeration or oil heating. With the new SUPER Ceramic (installed only by SUPER Oil Heater distributors), all noise of combustion is eliminated. Write for the booklet, "Silence".

THE SUPER OIL HEATOR CO.  
PAWTUCKET, RHODE ISLAND



# Taking Refrigerator Salesman Apart to See How He Works

## Diverse Group of Men Attain Success in Persuading Public to Buy

CONSPICUOUS at the convention held in Cleveland recently by the Electric Refrigeration Department of the General Electric Company was a group of about 100 men—the actual number was slightly in excess of 100—wearing stovepipe hats and carrying canes. They were the Cabinet Members of the famous G. E. Toppers Club, a select organization composed of the leading G. E. refrigerator salesmen from all over the country. To get into the Toppers Club in the first place, a salesman must sell \$25,000 worth of refrigerators in a year. The Cabinet Members then are chosen from this group. They are the first 100 men in the country plus the leading man from each distributing organization that otherwise would be without representation in the Cabinet. The Cabinet present at the Cleveland convention numbered about 120 and included two women, one from the north and other from the south. They were Mrs. Jennie Payne, of New London, Conn., and Mrs. M. D. Thorpe, of Aiken, South Carolina.

The members of the Cabinet were asked to fill out a short questionnaire which included questions in regard to age, height, weight, education, previous selling experience, and some additional data in regard to certain phases of the G. E. sales plan. Near the end of the questionnaire, each man was asked to state what in his opinion were the three outstanding reasons why people buy electric refrigerators, and the three outstanding reasons why they do not. In closing, he was encouraged to set down in any form that seemed best to him his opinion of the reasons for his sales success.

The questionnaires, 118 in number, have just been analyzed, and as the

G. E. sales group may fairly be regarded as typical of the industry, the facts and figures concerning them will doubtless be of interest to every reader of the News engaged in, or connected with, the sales end of electric refrigeration.

Where do the leading salesmen come from: the rural districts or from the big cities and their surrounding suburbs? The G. E. answer to that question is that it is a fairly even break. The Cabinet boasts 61 men from the urban centers, and 57 from the countryside.

Next comes a line-up which has a bearing on the general sales policy. Of the 118 men listed in the questionnaires, 83 are employed by distributors, 22 by dealers, and 13 by central stations. Just what is the full significance of that situation is a question for the big executives to think about.

The question in regard to age seems to indicate that there is no best age for a successful refrigerator salesman. The G. E. boys are scattered all the way along the line, from 22 to 60. Not quite all the way at that. There isn't a twenty-five year old in the lot, and forty-nine is another milestone that draws a blank. The most popular age is twenty-nine with a count of 11 Toppers. Beginning with 33 and running through 36, the list reads 7, 9, 8, 9, and all of the others are below the 7 mark. There are five men over 50.

Height seems to be no great factor in making or breaking a refrigerator salesman. The shorties, men five feet or less, numbered 14; the tall boys—over five feet eleven—mustered a membership of 32; and the other 72 were just medium. So far as weight is concerned, the average men dominated the field once more. There were 12 men on the



These G. E. Cabinet Members Have One Thing in Common. They Can Sell Refrigerators

list who could safely be described as more than stout, and 16 who might merit the expressive adjective "skinny." The rest were just plain men of average height.

As might have been expected the married men outvoted the unmarried by an overwhelming majority. The count is 97 to 21. The next question in regard to dependents was so worded that it was impossible to distinguish between children, parents, wives, mothers-in-law and the various other species of depend-

ents. One man wrote "None," and then evidently reconsidering the situation at home, crossed out the "None" and substituted "Wife" in big letters. The indications are, however, that in a great majority of cases the commissions on sales of G. E. refrigerators are helping to bring up growing families.

The questions about education showed that practically all of the men have completed grade school work. About half the group have been through high school and nearly one-third have been to col-

lege. A large number also have taken correspondence courses.

Previous selling experience is set down on the questionnaire by 80 men, and of these four score only 18 have sold refrigerators made by competitors. The articles sold include electrical appliances, securities, life insurance, fish, advertising, pianos, cash registers, shoes, furniture, food products, building materials, coal, automobiles, real estate, furnaces, groceries, office equipment, steel, clothing, blankets, grain, tractors, and various other products. Men who previously sold other electrical appliances form a considerable group.

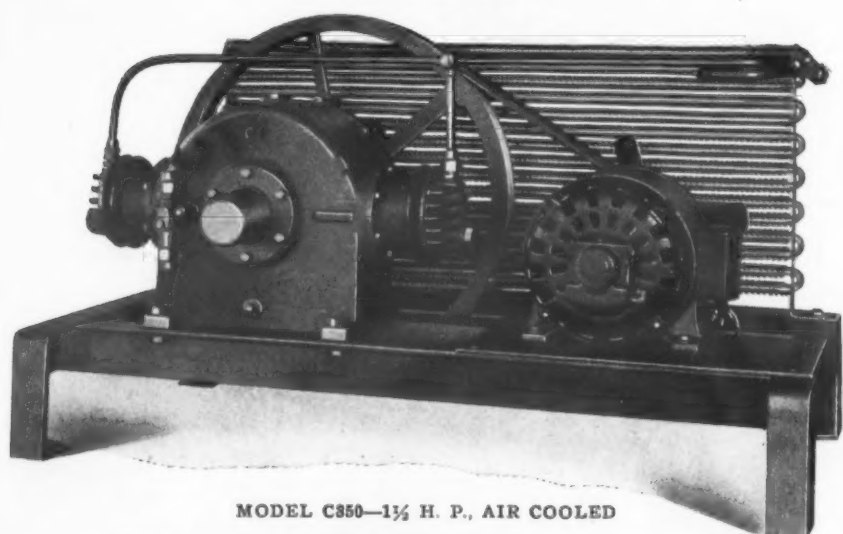
As for the men without previous selling experience; they came from a wide (Continued on Opposite Page)

## ICELECT REFRIGERATION Heavy Duty - Slow Speed Refrigerating Units

Especially Built for

Butchers, Grocers, Apartments  
and Commercial Work in General

1/6 to 1-1/2 H. P.



MODEL C850—1½ H. P., AIR COOLED

PRESSURE OILING SYSTEM

SILENT POPPET VALVES

BUILT IN OIL PUMP

NO CONNECTING RODS

NO DELICATE VALVES

NO SEAL GRINDING

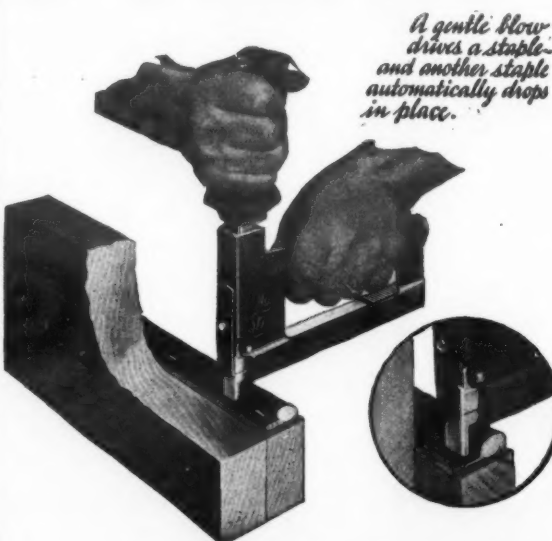
NO CRANK SHAFT

NO PISTON SLAP

The Booklet "Heart of Refrigeration" Tells the Story

**ICELECT CORPORATION**  
OMAHA, NEBRASKA

## GASKET QUICKLY APPLIED



SHIPPED ON 10 DAYS' TRIAL

Should be in the tool kit of every installation man, service man, repair man.

8 TIMES FASTER—MORE SECURE

Ideal for tacking shipping tags and wherever tacks are used.

MARKWELL NO. 176, AUTOMATIC REFRIGERATOR TACKING MACHINE, \$7.50 EACH

STAPLES PUT UP 5,000 TO A PACKAGE

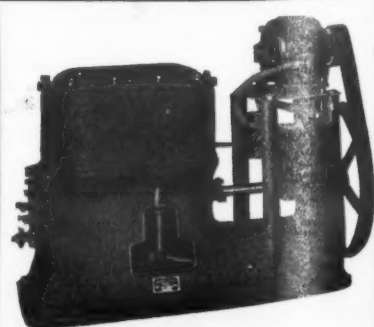
176 "B" Steel, per pkg. ....\$2.75 176 "BTC" Copper, tin plated, per pkg. ....\$3.25

176 "BC" Copper, per pkg. .... 3.75 176 "BM" Monel, per pkg. .... 5.50

PRICES ON STAPLES IN QUANTITY ON APPLICATION

Prices are F. O. B. New York

**R. N. E. MARKWELL MFG. CO. INC.**  
200 HUDSON STREET NEW YORK, N. Y.



**Electric Refrigeration Distributors and Dealers**

You need the PEERLESS line of compressors.

PEERLESS units give you a COMPLETE line, ranging from one to ten tons.

PEERLESS Perfected Multiple Apartment System is recognized leader in its field. Full details given on request. Our record warrants your most exacting investigation.

**PEERLESS ICE MACHINE CO.**  
515 W. 35th St.  
CHICAGO, ILLINOIS



# rk's G. E. Toppers Tell How They Corral the Cash

(Continued from Opposite Page)

variety of occupations. One was a professional ballplayer, another a cattle dealer, a third a farmer, and so on. There are former executives working side by side with men who have spent their time at the machines in factories and mills. Clerks, mechanics, engineers, plumbers, printers, newspapermen, advertising managers, miners, are all on the list of G. E. Cabinet Members. Success in the refrigeration business seems to be distinctly up to the man himself.

"Why does the public buy refrigerators?" The answers to that question indicate that the G. E. salesmen have been pretty well drilled on the reasons why the public should buy refrigerators. There is a monotonous sameness to the answers that probably proceeds from sales lessons well learned, rather than from the actual comments or statements made by customers. "Health, economy, convenience, pride of possession," are the four reasons that crop up in one questionnaire after another. Good reasons all, but a little lacking in originality of thought or expression.

The originality turns up when it comes to the next question, "Why don't people buy refrigerators?" The great majority of people who refuse to buy, base their refusal on price. They claim that refrigerators are too expensive or that they simply do not have the money. "Some of my prospects who won't buy are mortgaged to the gills with autos and radios" is the way one Topper puts it. Nearly ninety of the men gave the price factor in one or another of its ramifications as the chief reason for not buying.

The next objection which mustered any considerable number of adherents was the possession of a new or fairly new ice box that was too good to throw away. Then come the people who think that the industry is so young that great economies in manufacture will be made in the near future and prices will come tumbling down. Lack of space proved a factor that cut down sales in certain sections of the country.

Two unusual local objections were revealed by the questionnaires. Of the Chicago salesmen who made the Cabinet, all but one mentioned last summer's gas leak trouble as an objection frequently voiced by their prospects. And in Queens Borough, New York City, where there has been a notorious sewer scandal with sky-high assessments as a result, the G. E. salesmen nearly all mention those high assessments as an obstacle to sales of refrigerators. Whether or not the salesmen themselves were so impressed by these publicly proclaimed handicaps that they unconsciously listened for them, is something that must be left for speculation.

One or two salesmen bravely stated that one of the main reasons why they did not sell more refrigerators was the simple fact that they did not know how to sell as well as they should. There is the merest possibility that this was a factor in the case of others, but that, too, is a matter for speculation.

Some of the methods used by the various men, as stated by them in the brief, and sometimes not so brief, personal histories which closed the inquiry, are printed below. They give an excellent picture of how the modern refrigerator salesman works.

## Toppers' Talk

"I regard every person I meet as a prospective buyer of a 'G. E.'; try to capitalize on my friends' friends, and make every customer I sell a personal friend. I accept my job as a G. E. salesman to be as 'high class' a job as a lawyer's or a doctor's, and feel like I have something worth while to talk with the busiest business man or housewife about."

"As regards the daily routine, there is nothing as important as a consistent two-hour canvass every morning that the weather conditions permit, no matter how cold."

"Know your product. Eat it. Dream it—and sell it."

"There is only one way to sell General Electric refrigeration to get maximum return for the time you put in, and that is to canvass, and I only wish that it were possible for me to talk to all the retail General Electric salesmen in this country and tell them in detail the

plan I have been following the last year, because I believe it is the only one. I've tried all the others, and I have had more success with this. Canvass in a zone, and if your city is not zoned, make one of your own and canvass, and when you get through canvassing, canvass some more. Give every household in this zone an opportunity to buy a General Electric refrigerator. Tell your story in each home. I find that canvassing in my city from door to door after one-thirty in the afternoon that you miss too many housewives for one reason or another, and I advise using the rest of the day contacting the husband in his office or in his place of business."

"While I was somewhat of a newlywed and was not able to get out nights as much as I would like to have done, I find that night selling is exceptionally effective and out of about 75% of the calls I made at night, sales resulted."

"I believe in selling the refrigeration unit apart from the cabinet to the prospect thus: If the prospect is interested in a G-55, I tell them that if they were to buy an ice box of the same quality, the same thickness of insulation, it would cost them at least \$150. Now, inasmuch as they are considering buying an ice box anyway, it would not be fair to charge this amount against the electric refrigerator, for they are actually only paying \$135 for the electrical part of the equipment and this investment of \$135 saves them \$24.00 every year over their ice bill, and in addition, saves them \$60.00 on their food bills per year. Thus earning 62 per cent per year on an investment of \$135.00, all of this saving is accomplished by the electrical part of the equipment."

"Many salesmen do just as some manufacturers have done—that is, they get

off to a bad start, getting down to work at 9:30 A. M., stopping in at the barber's for a shave, and the day started without a plan. I have found it very essential that one must have a plan, and work his plan. The idea of jumping here and there all over the territory, looking for quick sales and easy profits, spells nothing but defeat."

"It is better to anger a prospect by calling too often that losing a sale by neglect."

"I find that a quite productive source of leads is from salesmen in other lines, real estate, washing machines, ranges, autos, furniture, also ice men, milk men—in fact, most any one. By a little previous planning I often find that a prospect has heard favorably from an 'unbiased' source more about the General Electric than I could give them in an hour's interview. Of course, I also reciprocate, and recommend certain other merchandise, such as cars, washing machines, etc."

"My methods are probably no different than most other salesmen. I canvass a certain amount each day, usually in the morning. The only way I can find out whether I can sell people refrigeration is to ask them, and by canvassing I can ask the greatest number of people."

"I do very little 'cold turkey' canvassing. I keep a list of potential prospects of 150 names. I procure these names from the telephone book, ice men, milk men, lodge membership lists, etc. I talk General Electric Refrigerator to everybody I meet, day in and day out."

"Each sale usually requires three steps: (1) A call at the home to see the wife; (2) a second call in the evening when her husband is home; and (3) getting both of them, if possible, to the display room."

## The Imitation Food Products Co.

(Branch of The Artistic Production Co.)

107 Lawrence Street  
Brooklyn, N. Y.

Ask for our catalog of January 1, 1930.  
Direct sales only. "Indispensable with refrigerator display."

## TO MANUFACTURERS OF ELECTRIC AND GAS UNITS

If you want CABINETS as you want them let PUFFER-HUBBARD build them. We work to specification.

Puffer-Hubbard Mfg. Co.  
MINNEAPOLIS, MINN.

## NEW SALES OPPORTUNITIES

By Government - Approved process the Plymetl Vault affords a simple, convenient method of safeguarding all clothing from the vast destructive power of moths. Fur coats can be safely kept at home the year 'round.

The Vault is practically free from all service problems. There is nothing to wear out. When the sale is made you are through except for new keys. The number of repeat orders is high—even

on mail orders it averages 1.75 vaults per customer.

Every buyer of an electric refrigerator is a live prospect for a Plymetl Vault—and vice versa. Thousands of Vaults have been sold without any national advertising. Now for the first time we are running a campaign in national magazines.

The first issues are already out —there is little time to lose. Write or wire for the Plymetl sales plan.

**PLYMETL VAULT**

Haskelite Manufacturing Corporation  
120 SOUTH LA SALLE STREET, CHICAGO, ILLINOIS



## REFRIGERATOR LINE FITTINGS

"UNITED" Copper Tube

dehydrated-deoxidized

Quick Service For New England

A. E. BORDEN CO.

110 High St., Boston, Mass.

## CALCO Sulfur Dioxide

"Buy the best, by every test"

Cylinders - Drums - Tank Cars

THE CALCO CHEMICAL CO., INC.

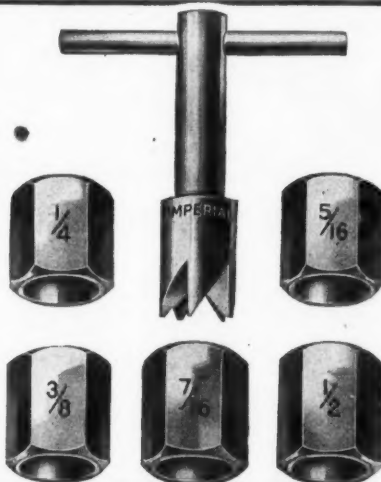
Bound Brook, N. J.

New York

Boston

Philadelphia

## Five Aids To Better Installations



### IMPERIAL REFACING TOOL

This new Imperial Tool insures against leaks caused by S. A. E. couplings that do not seat properly. When scratches or other blemishes prevent an absolutely tight seat, the coupling may be refaced in a few moments with the Imperial Refacing Tool. Thus the practice of throwing away fittings and valves with damaged seats is eliminated. In use, the coupling is inserted into the correct adapter; then a few turns of the five-fluted hardened steel refacer will produce a faultless seat of just the correct size and taper for an absolutely tight and leak-proof joint.

No. 100-F Refacing Tool with adapters for sizes 1/4", 5/16", 3/8", 7/16" and 1/2". Per Set....\$3.75

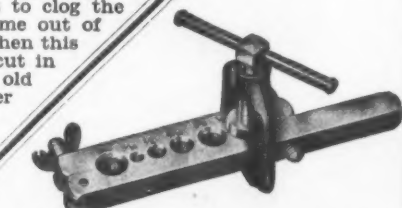
### Imperial Tube Cutter



Here is a highly efficient tool for cutting copper, brass, block tin and lead tubing. It takes all sizes of tubing from 1/4" to 3/4" and makes a right-angle cut, quickly and cleanly, leaving no burrs or chips to clog the line. The tubing does not become out of round as when put in a vise. When this tool is used, tubing can be cut in half the time required by old methods and a far better job results. No. 94-F Tube Cutter, each

Brass Forgings

\$2.50



### Imperial Flaring Tool

The Imperial Flaring Tool gives the proper flare and taper to the tubing for making up joints. A perfect flare means a tight joint, and this tool does the work in the least time and with the utmost simplicity. No loose dies—no vise necessary. No. 93-F takes tubing sizes 7/16", 3/8", 1/2", 5/8", 3/4", and 1", each \$3.00. No. 95-F takes tubing sizes 1/4", 5/16", 3/8", 1/2" and 5/8", each \$4.00.

Accurately made to meet all the requirements of Iceless Refrigerator Manufacturers. Will not leak. Let us quote on your requirements.

### Imperial Tube Bender



Here is a simple but most efficient device for bending tubing to any degree desired. This tool was developed in our laboratory after many tests with every method known for bending tubing. With the Imperial Tube Bender a clean, workmanlike bend can be produced in a few seconds. This tool is light in weight and most simple to use. It consists of a coil of spring steel wire, with a flare at one end. To use, it is merely slipped over the tubing and brought to rest at the place where the bend is to be made. Then both tube and coil are bent by hand to whatever form desired. Seven Tube Benders comprise a complete set and each is strongly made, cadmium plated and will last a lifetime. No. 101-F Tube Bender Set for tubing sizes, 1/4", 5/16", 3/8", 7/16", 1/2" and 5/8". Per Set.....\$2.75

THE IMPERIAL BRASS MANUFACTURING CO.

565 SOUTH RACINE AVE.

CHICAGO, ILL.

## RECO

ELECTRIC MILK COOLING

"The Boiler Plate Cabinet"

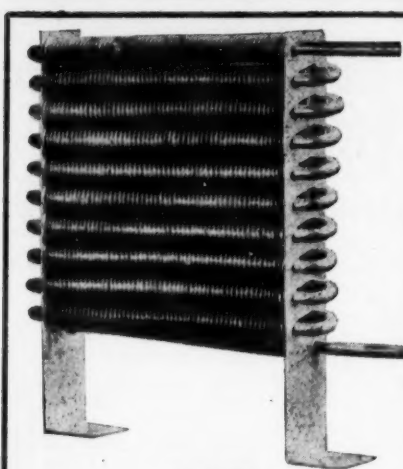
DOMESTIC UTILITIES

Division of the Refrigeration Corp.

of Maryland

ARLINGTON, BALTIMORE, MD.





### Specify ROME CONDENSERS

Made of heavy gauge de-oxidized seamless copper tube. One piece construction. Designs for all requirements.

Rome-Turney Radiator Co.  
ROME, N. Y.

### UTAH DEALERS HEAR G. E. TRAVELING TROUPE

Salt Lake City, Utah.—The annual regional convention of the electric refrigeration department of the General Electric Company was held at the Hotel Utah on March 10, under the local sponsorship of Frank Edwards, Inc. The convention, which was attended by approximately 150 distributors, dealers and salesmen from the inter-mountain territory, was featured by the dramatized presentation of many of the subjects discussed by the General Electric Co. for the men who are at work in the field.

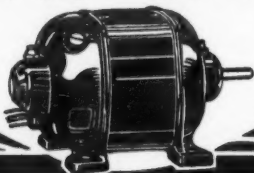
A traveling troupe from Cleveland, with stage equipment and incidental "props," presented sales problems and their solutions through the medium of photophones, playlets and skits. A photophone presentation by which P. E. Zimmerman, general sales manager, addressed the gathering from his desk in Cleveland, was one of the many interesting features. Other sound films, including one depicting four tests to which the refrigerator was subjected—including sand blasting, water and fire—were shown. A banquet was held in the evening, at which there was a large attendance.

## Leland Motors

### for ELECTRIC REFRIGERATION

The Leland Motor is particularly well adapted to the demands of electric refrigeration, in which specialized field they have met with widespread favor. They are sturdy, dependable, unusually quiet running and are available in the various fractional sizes.

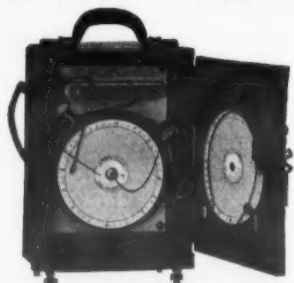
The Leland Electric Co.  
Dayton, Ohio, U.S.A.



### Offering Subject to Prior Sale:

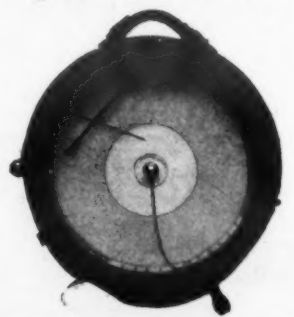
#### 45 BRISTOL'S Electrical Time Operation Recorders

Model No. 916. 6 in. Dia. Chart



Price \$18.00 Each

61 New at  
\$20.00 each  
58 Slightly Used at  
\$15.00 Each



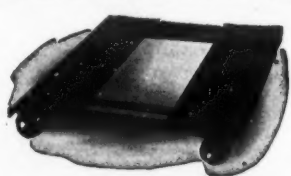
#### Tag Electrical Time Operation Recorders

10 in. Dia. Chart

Both the Tag and Bristol's have been especially designed to be used for checking operating time of motors for electrical refrigerators. Can be used on 110 volts A. C. or D. C.

#### 500 Steel Dollies

with 4 in. Dia. Cast Iron Swivel Wheels  
Base 40 in. x 31 in. x 6 in. Height



Price \$4.00 Each  
Welded Sheet Steel, 11 ga.

#### 40 New 3 in. 100 lb. Ashcroft Pressure Gauges Price \$1.50 Each

#### 2 New 6 in. 100 lb. Crosby Test Gauges

Bronze Encased  
Price \$8.00 Each

#### 8 Slightly Used BRISTOL'S Recording Thermometers

For in and outside temperature. With 3 foot metal flexible tube and bulb. Two pen arms.

Price \$25.00 Each

#### The Standard Steel Co.

15-17 Kimberly Ave. Tel. 9-3440  
WEST HAVEN, CONN.

## New Refrigeration Patents

### ISSUED MARCH 11

1,749,763—METHOD AND MEANS FOR REDUCING TEMPERATURE BY DEHYDRATION. Walter L. Fleisher, New York, N. Y., assignor to The Cooling & Air Conditioning Corporation, New York, N. Y., a Corporation of New York. Filed Aug. 8, 1928. Serial No. 298,213. 20 Claims. (Cl. 62-176.)

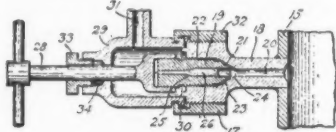
1. A method of reducing the temperature of air consisting in dehydrating the air and saturating it.

1,750,001—DUAL-CONTROL TEMPERATURE REGULATION. Joseph H. Godfrey, Chicago, Ill., assignor to The Creamery Package Mfg. Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 24, 1928. Serial No. 301,757. 20 Claims. (Cl. 236-18.)

1. Apparatus of the class described comprising, a conduit for liquid, a conduit for medium in heat exchange relation thereto, means for maintaining a variable determinable normal temperature in the medium supplied to said medium conduit, and means associated with said medium temperature maintaining means and automatically operable therewith to effect the raising and lowering of said medium normal temperature respectively to decrease and increase of temperature maintained by said medium temperature maintaining means in the liquid passing a portion of said conduit.

1,750,047—AIR-COOLING APPARATUS. Gustave A. Metzger, Belleville, Ill. Filed May 31, 1928. Serial No. 281,840. 4 Claims. (Cl. 261-103.)

1,750,335—COMBINATION FILLING AND FUSIBLE PLUG FITTING. Robert Seth Taylor, Brooklyn, N. Y., assignor to Electrolux Servel Corporation, New York, N. Y., a Corporation of Delaware. Filed April 21, 1927. Serial No. 185,408. 11 Claims. (Cl. 62-119.5.)



1. A combined fusible and filling plug fitting comprising a member having a passageway through the same adapted to receive a plug, a plug for said passageway, said plug and passageway having coating surfaces forming a valve closure, said plug being formed to permit passage of fluid past the same when said plug is in some positions in said passageway but prevent passage of fluid past the same when said surfaces coat, a channel through said plug and fusible metal in said channel.

1,750,336—MOTOR-STARTING SWITCH. Matson C. Terry, Philadelphia, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed July 15, 1925. Serial No. 43,836. 26 Claims. (Cl. 62-4.)

1. In combination with a machine embodying two chambers wherein it is desired to maintain a predetermined difference of pressure between said chambers, a motor pump device embodying an armature, a starting winding, a running winding and a pump for maintaining said pressure difference, a pressure re-

sponsive device subject to the pressures in said chambers, means for energizing said motor pump device and control means subject to movements of said pressure responsive device to energize said starting winding and operative upon excessive pressure difference to stop the energization of said motor pump device.

### ISSUED MARCH 18

1,750,675—BEVERAGE DISPENSING AND COOLING BOX. Henry R. Loosley, East St. Louis, Ill. Filed Oct. 11, 1928. Serial No. 311,740. 5 Claims. (Cl. 312-174.)

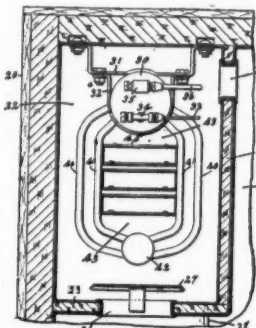
1,750,726—LIQUID AGITATION COOLER. Charles J. Nagle, Herkimer, N. Y. Filed June 10, 1929. Serial No. 369,910. 3 Claims. (Cl. 257-208.)

1. In a cooler of the class described, a cabinet of substantially rectangular configuration open at one end, hingedly mounted doors for closing the opening, an elongated trough located within the cabinet, means for supporting the trough transversely of the cabinet, said trough being of substantially T-shaped formation and having its lower end in spaced relation with the bottom of the cabinet, an electric motor disposed exteriorly of the cabinet, a propeller located within the cabinet, and means operatively associating the propeller with the electric motor.

1,750,763—APPARATUS FOR REFRIGERATION. Clyde E. Molesworth, John Dudman and Carl G. Zokelt, Seattle, Wash. Filed Sept. 12, 1927. Serial No. 219,028. 3 Claims. (Cl. 62-93.)

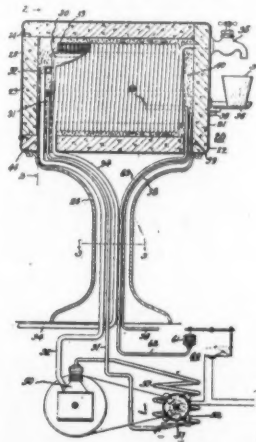
1. A device of the character described comprising an insulated housing providing an insulated compartment in the top portion thereof and a refrigerating chamber below said compartment, an insulated tank disposed within the top compartment for containing a supply of liquid refrigerant, a vent pipe leading from the top of said tank, an expansion coil located within the top of the refrigerating chamber having a pipe connection with the base of the refrigerant container through which the coil may be supplied by gravity flow and through which gas may be vented from the coils, a filling pipe connected with the base of the coil and extended upwardly to a point above the refrigerant container and a trap in said filling pipe adjacent its connection with the coil for preventing outward passage of the refrigerant.

1,750,882—REFRIGERATING APPARATUS. John Ralph Fehr, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed Dec. 2, 1926. Serial No. 152,263. 11 Claims. (Cl. 62-95.)



5. A cooling unit for mechanical refrigeration comprising, a plurality of headers and a plurality of ducts connecting the headers, certain ducts connected between two of said headers being spaced apart to enclose therebetween a freezing space and certain other ducts being located spaced from said freezing space.

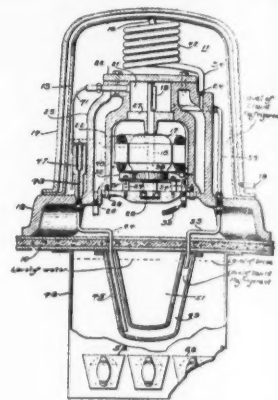
1,750,893—LIQUID COOLER. Jessie G. King, Dayton, Ohio, assignor, by mesne



assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed Feb. 21, 1927. Serial No. 169,746. 9 Claims. (Cl. 62-141.)

1. A liquid cooler comprising, in combination, a cylindrical refrigerant chamber having walls of metal of good thermal conductivity, and a coil of flattened pipe of metal of good thermal conductivity wound on edge and having its turns metallically joined to the chamber and the flat sides of the turns of the coils abutting one another.

1,751,209—REFRIGERATOR. Andrew A. Kucher, Chester, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed July 10, 1923. Serial No. 650,668. 13 Claims. (Cl. 62-116.)

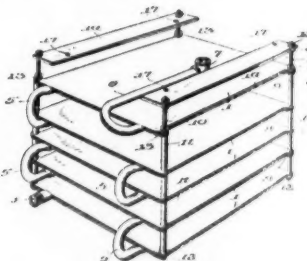


1. In a refrigerating apparatus, the combination of an evaporator, a compressor, cooling means for condensing the refrigerant vapor discharged by the compressor, a motor for driving the compressor, a chamber enclosing the compressor and the motor, a single jacket both surrounding the motor and the compressor and disposed in direct heat-exchanging relation therewith, and means for conveying a cooling medium through said jacket.

1,751,285—REFRIGERATOR COUNTER. Arthur Malling, Cleveland, Ohio, assignor to The Schwenger-Klein Company, Cleveland, Ohio, a Corporation of Ohio. Filed Feb. 13, 1928. Serial No. 254,021. 1 Claim. (Cl. 211-181.)

A platter rack for refrigerator counters comprising a frame member having supporting legs thereon for supporting said rack with one end higher than the other, spaced bars extending longitudinally of and secured on said frame and certain of said bars having portions thereof extending beyond said frame at said lower end to form abutments to maintain said tray spaced from the wall of the counter, certain other of said bars having the ends at the lower end of said tray turned up to prevent platters from sliding beyond the end.

1,751,317—EVAPORATOR ELEMENT. George W. Gail, Ruxton, Md., assignor to Kulair Corporation, Philadelphia, Pa., a Corporation of Delaware. Filed March 23, 1928. Serial No. 264,243. 7 Claims. (Cl. 257-256.)



1. An expander element for refrigerating machines, comprising a series of substantially flat plate like heat exchange units provided with passageways, superimposed one upon the other, conduits connecting the passageways of the respective units and means independent of said conduits for rigidly clamping the said units together in spaced relation.

1,751,319—THERMOSTAT. George W. Gail, Ruxton, Md., assignor to Kulair Corporation, Norristown, Pa., a Corporation of Delaware. Filed Jan. 12, 1928. Serial No. 246,226. 5 Claims. (Cl. 200-139.)

### ISSUED MARCH 25

1,751,499—REFRIGERATING APPARATUS. Alfred Morris Thomson, Newark, N. J., assignor to Joseph Mercadante, New York, N. Y. Original application filed Nov. 22, 1926, Serial No. 149,844. Divided and this application filed May 16, 1927. Serial No. 191,562. 1 Claim. (Cl. 137-103.)

In a refrigerating apparatus, an expansion valve comprising a float chamber, a float therein, a support, a valve member carried by said support and connected to said float, a valve seat carried by said support and removable therefrom, removable means engaging said support accessible from the exterior of said float chamber for normally holding said valve seat in place, a valve chamber adjacent to said valve seat and having an opening in line with the longitudinal axis thereof said valve seat and said valve seat holding means being removable through said opening, a removable closure for the opening in the said valve chamber and a screened fluid intake port communicating with said float chamber and said valve chamber, said screened intake port being downwardly disposed in said float chamber.

(To be continued)

## The Filtrine Filter assures pure, clear water from your ELECTRIC

### Water Cooler

WRITE FOR DETAILS  
**FILTRINE**  
MANUFACTURING COMPANY  
49 LEXINGTON AVE., BROOKLYN, N.Y.  
Manufacturers of FILTERS & COOLERS of all sizes

### EXTRA DRY ESOTOO

THE PUREST

## SULPHUR DIOXIDE

Analysis Guaranteed

WE HAVE AN AGENT WITH OUR PRODUCT IN STOCK

NEAR YOU - WRITE US WHERE WE CAN SERVE YOU

**VIRGINIA SMELTING CO.** West Norfolk Va.

F.A. 85715, Sec. 131 State St. BOSTON 2, Mass. 200 N. NEW YORK



## INAUGURATES INSTITUTE FOR MACHINE OWNERS

Seattle, Wash.—Establishment of an "Institute" for teaching the electric refrigerator owner greater respect, admiration and pride in the mechanical genius behind the production and operation of the latest models has recently been inaugurated as part of the sales, display and demonstration service at Gordon Prentice, Inc., western Washington distributors for General Electric refrigeration equipment.

For this "Institute" a room has been set aside and fitted up at 1925 Fifth Avenue, Seattle, where refrigerators in the General Electric line are demonstrated, down to the most minute working parts. The entire story from beginning to end is thoroughly gone into for those anxious to learn something more about their refrigerators.

James S. Bruce, sales promotion manager of the organization, has placed the "Institute" also at the disposal of architects, building owners, the secretaries of clubs and associations, and building contractors. Large special groups are being interested in the complete collection of data, display and demonstration, which has been arranged for the home owner and the possessor of the new equipment who would like to go deeper into the subject.

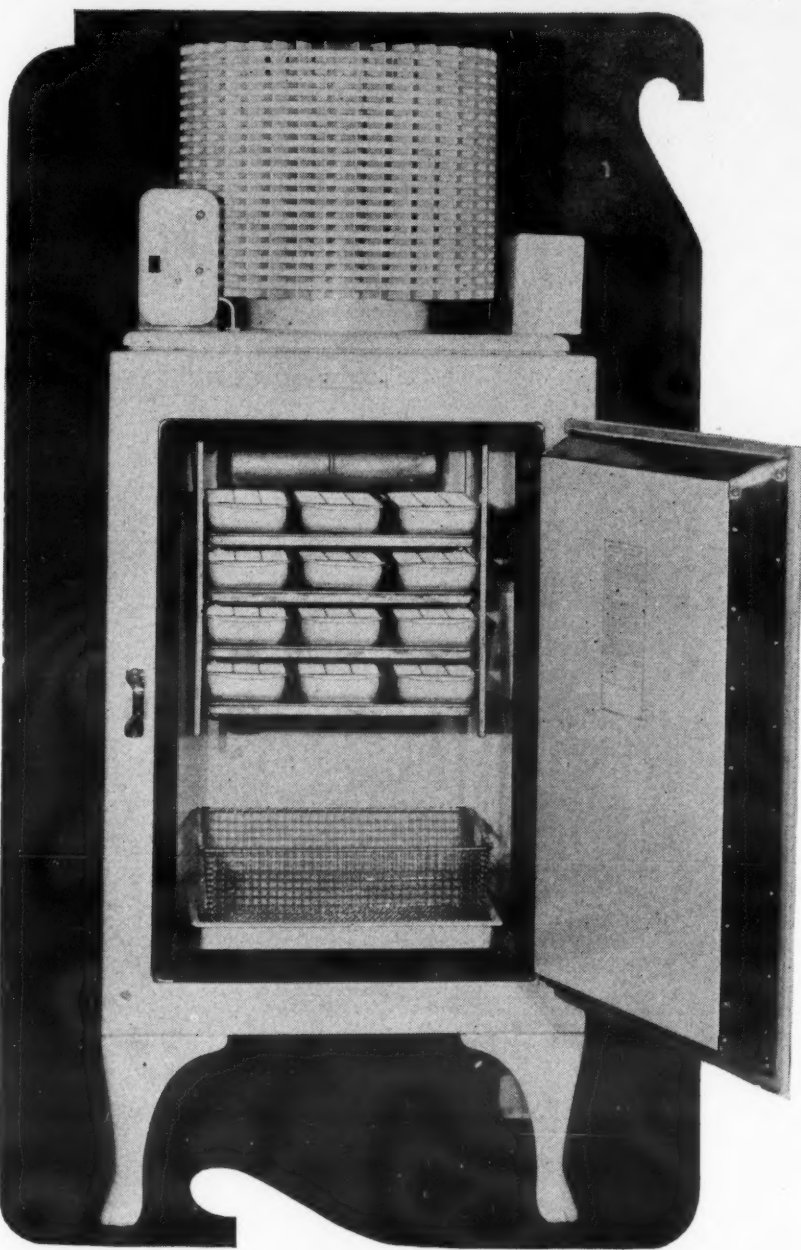
The principle underlying the establishment and promotion of this newly equipped "Institute" is that which hitherto had been applied to the automobile owner, where a broader understanding of his car was held responsible not only for his increased respect and admiration for the product, but equipped him to handle it according to the original intention of the makers, learning not to abuse it but to care for it and secure the maximum service by its proper maintenance and operation.

### SERVEL FOREMEN SEE ENAMELING FILM

Evansville, Ind.—At a meeting here on March 25, foremen in the plants of Servel, Inc., viewed with interest several Ferro Enamel films which showed porcelain enameling operations in the plants of the Canton Stamping and Enameling Co., Florence Stove Co., and Mullins Mfg. Corp.

Similar films were also shown on the same day to the Chicago and St. Louis Enamellers' Clubs, which met in their respective cities.

## G. E. Ice Maker Faces the Summer Confidently



Ice-maker which the General Electric Co. recently added to its line.

## Copper, Brass and Bronze Parts give lasting service

For authoritative information about the uses and proper application of these metals in electric refrigeration, consult

### COPPER & BRASS

RESEARCH ASSOCIATION

25 Broadway, New York

### MORE MODERNISM IN THE SALESROOM

Springfield, Mass.—Electric Device Co., General Electric dealer, has transformed its showroom at 119 Dwight St. by redecorating the walls in brown for the lower half and buff for the upper half, with a band between of modernistic designs, combining the colors of brown, buff, apricot and blue. Lamps of modernistic design and new rugs and chairs which blend with the decorations are other features in the effective arrangements. Against this combination of colors, the refrigerators, mostly in white and ivory, are shown to excellent advantage.

### COPELAND CALLS DEALERS TO MILWAUKEE

Milwaukee, Wis.—Copeland dealers throughout the state met here on March 20, at the offices of the Copeland Refrigeration Company of Milwaukee, 415 Prospect Ave. Approximately 100 dealers attended the meetings.

One of the principal speakers heard was V. P. Warren, Atlanta, Ga., president of the Larkin-Warren Refrigerating Corp. Mr. Warren spoke on business conditions in the industry and looks forward to a successful year for all dealers.

Other speakers were H. T. Kessler, vice-president of the Copeland Refrigeration Co., Chicago; Marion Moore, in charge of commercial sales of the Copeland Co., and W. W. Sparbeck, zone manager for the central west, all from the Mt. Clemens, Mich., executive offices. A banquet at the new Pfister Hotel in the evening concluded the convention.

### RYAN GETS NEW POST WITH ELECTRO-KOLD

Portland, Ore.—The Electro-Kold Corporation of Spokane has announced a change in the personnel in the Electro-Kold Sales Co. of Portland, distributors in Oregon.

J. J. Ryan, for the past four years sales manager of the Seattle branch of the Electro-Kold corporation and connected with electric refrigeration on the coast for several years, becomes manager of the Portland firm. J. A. Hamble, who owns the local business, has arranged with the factory for its employees to operate the Portland business in order to bring factory experience and methods of installation and service into the territory.

### STATIONARY DINER GETS KELVINATOR

Nashua, N. H.—The Public Service Company has just completed the installation of complete Kelvinator electric refrigeration equipment in the new "diner" owned by Walsh Bros.

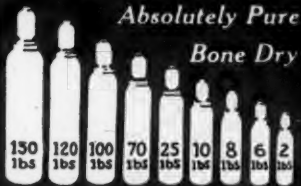
This diner is very unique, and is reported to be the largest of its kind ever shipped into northern New England. It is situated in the heart of the business district of Nashua. The equipment consists of two separate water cooling cabinets, one combination tonic and milk cooler, a refrigerator and combination display case.

## PATENTS

Searches, reports, opinions by a Specialist in REFRIGERATION  
**H. R. VAN DEVENTER**  
Solicitor of Patents - Refrigeration Engineer  
342 MADISON AVE. NEW YORK

**AMERICAN EXPANSION VALVES**  
AUTOMATIC-THERMOSTATIC  
AMERICAN RADIATOR COMPANY

Every Cylinder Analyzed  
Absolutely Pure  
Bone Dry



**SULPHUR DIOXIDE**  
for DIRECT CHARGING

also  
Ton Drums  
Tank Cars

**ANSUL CHEMICAL COMPANY**  
MARINETTE WISCONSIN

*precision built*

Specializing in  
Refrigeration Compressor

**Eccentric**  
and

**Crank Shafts**

Made to your specifications. Send us your blue prints—we'll send you our prices.

**Modern Machine Works, Inc.**

195 Milwaukee St. MILWAUKEE, WIS.

### Juruick ELECTRICAL REFRIGERATION

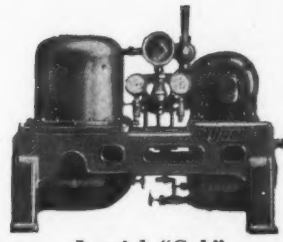
Only experienced engineers could build a refrigerating unit like the JURUICK... that produces a pure, dry cold, unvarying in intensity... that is automatically controlled to prevent the unnecessary use of power and water... that is silent, smooth, dependable... that is so compact, good looking and economical!

And only a JURUICK could be so easy to understand, to operate and to sell.

Solve your refrigerating problems with a JURUICK unit.

Write for literature

**AMERICAN ENGINEERING COMPANY**  
2420 Aramingo Ave., Philadelphia

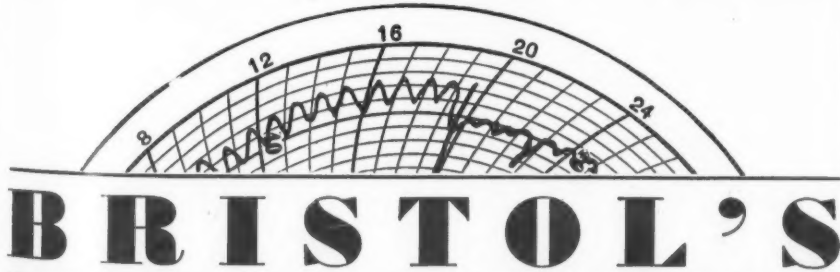


Juruick "Cub"

1/4-ton to 40-ton  
refrigerating  
capacity

## Voir la page 12

COMPAGNIE MARKWELL



### Small Size "Handy Recording Thermometer"

AN ideal medium for obtaining automatic records of atmospheric temperature in cold storage rooms, refrigerators, hardening rooms, etc. Instrument as illustrated is entirely self-contained. The all-metal case of aluminum alloy is light in weight, yet rugged. Furnished either with black or white enamel finish. Has convenient handle for carrying about. Can be set down anywhere.

Charts used are but 4-inches in diameter, yet have wide, open scale graduations—easy to read, and Temperature records are continuous over period of 72 hours.

Complete information, prices, etc., in Bulletin No. 377. Write for a copy.

**The Bristol Company, Waterbury, Conn.**

### Mouthpiece

Canister

### Respirators

for

### PROTECTION

against

**Sulphur Dioxide  
Fumes**

No. 53 PULMOSAN Canister Mouthpiece Respirators, with flexible tubing, and positive flutter valve, give positive protection against SO<sub>2</sub> fumes.

Air-tight goggles can be supplied.

Mail The  
COUPON

### PULMOSAN SAFETY EQUIPMENT CORP.

176 Johnson St.

Brooklyn, N. Y.

Mail The COUPON  
PULMOSAN SAFETY EQUIPMENT CORP.  
176 Johnson St., Brooklyn, N. Y.  
Gentlemen: Send us full information on your No. 53 Mouthpiece Canister Respirator.  
Name..... Address..... (E. R. N.)



## LITERATURE OF MANUFACTURERS

Catalogues, bulletins and other material recently issued.

Manufacturers are requested to send copies of new trade literature to Electric Refrigeration News.

### Baldor

The new Baldor capacitor motors are available in sizes from  $\frac{1}{8}$  to  $\frac{1}{2}$  horsepower. Bulletin No. 12 recently sent out by the Baldor Electric Co., St. Louis, Mo., describes the construction and operation of the capacitor motors.

### Grammes

L. F. Grammes & Sons, Allentown, Pa., has issued a new catalog on its complete line of metal specialties. A number of pages are devoted to a description of the production methods used in the Allentown factory. Stampings, wire formings, checks and badges, cabinet hardware, small nails, machinery, name and number plates, signs of all kinds, dials and panels are all illustrated and described.

### Kelvinator

Portable ice cream cabinets designed for "small stop" are illustrated in a folder recently put out by Kelvinator Corp., Detroit. Three sizes are available—2, 3- and 4-hole models. A photograph and description of one of Kelvinator's new models can be found elsewhere in this issue.

### Norge

New models announced a short time ago by the Norge Corporation, Detroit, division of the Borg-Warner Corporation, are presented in a series of three folders and a large broadside. The new literature is attractively done in purple and green colors and features of the Norge Rollator are emphasized.

Each folder describes one of the new Norge models; one is devoted to the "Sentinel," a four cubic foot model; another to the "Defender," which has five cubic feet storage capacity, and the other to the "Guardian," which is in the eight cubic foot class. These models are equipped with the new Norge Cold Accelerator which permits five freezing speeds. Ice tray compartment is isolated from the food chamber by a self-closing door which keeps ice cubes free from food odors. Down draft cold flues on freezer provide positive air circulation and temperature uniformity.

### Sure Cold

The Warner Steel Products, Ottawa, Kan., has prepared an interesting broadside to interest commercial prospects in Sure Cold refrigeration. Construction of the compressor is described in detail in this mailing piece. Frame, drive, bearings, piston rings, crankshaft, connecting rod and other features are called to the attention of the prospect. Fin type coils for commercial installations are also covered in this broadside.

### Temprite

Seven models make up the line of beverage coolers now being manufactured by the Liquid Cooler Corp., Detroit, Mich. Recently, this company issued a folder which describes the Temprite models designed for beverage application. One of the Temprite units will cool one, two or three different beverages to 40 degrees.

## AMERICAN INSTITUTE PLANS WASHINGTON MEETING

Washington, D. C.—The annual convention of the American Institute of Refrigeration will be held at the Hotel Washington here, May 1-2. A number of interesting papers are being arranged for the program of the meeting.

## Food Engineer Greets Kelvinator With a Smile



## OHIO UTILITY LAUNCHES 1500 UNIT DRIVE

Cleveland, Ohio—A bogie of 1500 electric refrigerators has been set up as the goal of the Ohio Public Service Co. in its spring drive, which opened on April 1st. Employees of the company are co-operating in the campaign, and departmental prizes will be given for the greatest number of prospects turned in which result in sales.

George W. Allison, nationally known sales promotion counselor, is in charge of a series of meetings at which he is instilling go-getter spirit into the organization.

## SERVEL DEALER EQUIPS SOLDIERS HOME

St. James, Mo.—Tim Birmingham, Servel dealer, has just secured an order for the installation of Servel equipment in the Soldiers' Home here. This order includes dairy milk cooling equipment, large food storage kitchen refrigerator and a domestic refrigerator to be installed in the home of Captain Hall, superintendent of the institution.

Mr. Birmingham is a dealer under the E. R. Fette Co., Servel distributor at St. Louis.

## M. P. NEAL JOINS O'KEEFE-MERRITT DISTRIBUTOR

Shreveport, La.—M. P. Neal, formerly department manager of the Lee Hardware Company, is now manager of the refrigeration department of the Shreveport Blow Pipe & Sheet Iron Works, distributors of O'Keefe-Merritt refrigeration.

JOVIAL Roy Brown, entertainer, announcer and handy boy at the recent Flint Pure Food and Household Appliance Exhibition, made friends with all the exhibitors and was snapped here inspecting and sampling Mrs. Helen Middleman's attractive food stock in a Kelvinator at the Genessee Hardware & Appliance Co. booth.

Judging from the expression on Roy's face, the food which has been preserved in the Kelvinator has a big appeal to him.

## Refrigeration Calls

INCREASED sales activity in the mechanical refrigeration industry during slack periods in other businesses has led a number of distributors of other classes of products to enter the refrigeration field.

Particularly of late, a number of prominent automobile distributors have signed franchises with various companies. In the March 26 issue of the News mention was made of two Staten Island distributors who signed up with the New York Kelvinator branch. Copeland makes the announcement elsewhere in this issue that a number of Southwestern automobile distributors have taken on representation of the Copeland line. All in all, more than a half dozen large concerns have entered the business of educating the public on the idea of proper food preservation.

## MILWAUKEE COPELAND GETS LARGE ORDERS

Milwaukee, Wis.—H. S. Heavenrich, of the Copeland Refrigeration Co., 415 Prospect Ave., announces that business conditions at the present time are very favorable, the Copeland company recently securing several large orders, among them a thirty-three (33) apartment building for individuals and a sixteen (16) apartment building for multiples.

Copeland is looking forward to a continuance of good business and are doing their share to promote consumer buying. This firm is a factor in the market, which is rapidly opening in this state.

## GET TEST FACTS and get all of them!

We feel you are entitled to know just what happens to your refrigerator from its receipt until it goes out the back door.

Complete records, work sheets, everything concerning the test, are open to your inspection.

GEORGE B. BRIGHT CO.  
Refrigerating Engineers & Architects.  
2615 12th St., Detroit

## YALE STUDENTS INSPECT DAYTON PLANT

Dayton, Ohio.—The Frigidaire corporation was host to 72 Yale students at a noon luncheon April 2. The group was very much interested in the engineering division and laboratories, and according to the comment of one of the students of industrial engineering, they profited greatly by their visit.

Prof. H. L. Seward, in charge of the party, quoted the students as saying: "We learned as much or more on this trip as we did in a month at school. That is, we were able to interpret much of the theory of the textbook and the experiments of the laboratory in terms of practical application."

## COPELAND DISTRIBUTOR IN NEW HAVEN MOVES

New Haven, Conn.—New Haven Electric Company, Copeland distributors, have moved into their new home at 131 John Street, having outgrown the firm's former quarters at 296 Elm Street. A number of Copeland dealers from the territory took part in dedication ceremonies. The new building has frontage of 100 feet and is 60 feet in height, with adequate floor space. The grounds surrounding it provide parking space for 100 automobiles.

## TWO BIRMINGHAM DEALERS CONSOLIDATE

Birmingham, Ala.—Consolidation of the Radio & Refrigeration Co., 1817 First Avenue, North, with the Maddox Electric Sales Co., 708 South Twenty-ninth Street, was announced recently. The new firm will be known as Maddox & Logan and will be located at 2011 Third Ave., North, in the heart of downtown Birmingham. Radio & Refrigeration handled a line of General Electric refrigerators.

### MISCELLANEOUS

FOR SALE—Attention, Climax dealers. Three model F Climax compressors. One been repaired by factory, one new, one used four months. One new model D Climax compressor. Extra condenser for model F and extra condenser for model D. What are we offered for above described, F. O. B., Houston, Star Electric & Engineering Company, 1914 Main Street, Houston, Texas.

## DRINKING WATER FAUCETS

for Refrigerators — Water Coolers  
New model now available for use on city water pressure



CORDLEY & HAYES  
147 Hudson Street New York City

## THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance—Positions Wanted—fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion \$3.00, additional words six cents each. Three insertions \$8.00, additional words sixteen cents each.

### POSITIONS AVAILABLE

WANTED experienced refrigerating sales engineers to sell Frick Ammonia and CO<sub>2</sub> refrigerating machinery from one-half to thirty tons; also the Absopure commercial line in Pittsburgh district. Must be capable of making estimates and specifications for dairies, ice cream plants, packing houses, markets, etc. In reply give experience, age, married or single. Good salary and commission to right man. Box No. 248.

LARGE distributing organization handling distribution in three states desires sales director thoroughly experienced in marketing electric refrigeration. Only men with proved capabilities and background of results will be considered for this unusual opportunity. Full qualifications and salary expected should be stated in first letter which will be held in strict confidence. Address Box 239.

LARGE Public Utility Company has an opening in its Service Dept. for a few first-class service men who thoroughly understand electric refrigeration and are able to service both commercial and domestic units. Apply Metropolitan Edison Co., Reading, Pa.

### POSITIONS WANTED

ENGINEER, with executive ability, wants connection with manufacturer or large distributor. Five years' experience as service and commercial sales engineer, thoroughly familiar with all types mechanical refrigeration. Prefer western or foreign territory but will go anywhere if salary is attractive. Box 242.

THE vice-president and general manager of one of the largest electric refrigeration distributorships in the United States wishes to consider a new connection. Six years' experience in this industry as retail salesman, wholesale salesman, retail sales manager, factory representative, general sales manager and general manager. Thoroughly experienced in organization, sales, advertising, sales promotion, financing, and every function of a successful distributorship. Prefer middle-western connection. Address Box 241.

REFRIGERATION Service Engineer. Eight years' experience in domestic and commercial refrigeration. Can organize and train service department in all types of installations. Prefer Copeland. Also well informed on oil and coal burning equipment. Box 238.

MAN capable of setting up refrigeration distributorship and handling entire retail and wholesale organization now available. Best of references from present connection. Also capable of handling and developing territory for manufacturer of either household or commercial equipment. Address Box No. 260.

### MISCELLANEOUS

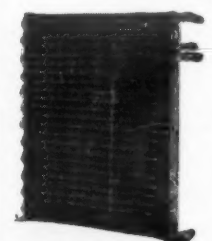
CORPORATION having secured patent allowance on revolutionary features in domestic and commercial electric refrigerating machines is desirous of securing individuals and sales organizations for state and district distributors. Machines are noiseless, sturdy, fool proof, fully enclosed, and operate with low amount of current for capacity. They will sell at the price you have been wishing for. Write, stating what territory you prefer and how much. Replies treated confidential. Box 251.

WANTED—For cash, standard makes of electric refrigeration units. Give full description and models and prices wanted. Box 243.

FOR SALE—Fedders Evaporators Type E-4. We have about one hundred and thirty of these units which we will sell at half price. Box 252.

## FLINTLOCK CONDENSERS

Full Capacity



With Every Unit

FIN AND TUBE SAME SOLID PIECE OF MATERIAL

FLINTLOCK CORPORATION

4461 W. Jefferson Ave.  
DETROIT, MICH.

## SUBSCRIPTION ORDER

ELECTRIC REFRIGERATION NEWS  
550 MACCABEES BUILDING, DETROIT, MICH.

Please enter subscription to *Electric Refrigeration News*.

United States and Possessions: ☐ \$2.00 per year. ☐ Three years for \$5.00  
All other countries: ☐ \$2.25 per year. ☐ Two years for \$4.00

I am enclosing payment in the form of ☐ Check ☐ P. O. Order ☐ Cash

Name .....

Address .....

City and State .....

Remarks: .....



# Refrigerated Food Section ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

VOL. 4, No. 16, SERIAL No. 92

Copyright, 1930, by  
Business News Pub. Co.

DETROIT, MICHIGAN, APRIL 9, 1930

Entered as second class matter  
Aug. 1, 1927, at Detroit, Mich.

IN TWO PARTS, PART 2

## CANDY

### Finds Cool Retreat from Arizona Heat in Refrigerator

Phoenix, Ariz.—Enterprising druggists have discovered how to increase their candy sales, through the careful guidance of the Central Arizona Light & Power Company, of this city. Before the druggists and other candy retailers discovered what modern refrigeration could do for them, they were selling packaged candies about six months out of the year. During the remaining time those who attempted to carry candy found the stock melting and deteriorating on their hands. The candy thus sold not only was unsatisfactory to customers, but the losses through melting and general depreciation were so heavy that there was little opportunity to make a profit during the warm half of the year.

And that condition not only eliminated half the potential candy profits, but it actually consumed much of the profits already made during the candy "season" through loss of stock left over after warm weather set in. Druggists tried various methods of cooling their candy cases, but the plan was so unsatisfactory that many of them carried no candy during the summer.

Then the Arizona Light & Power Company induced a Phoenix druggist to try a G. E. electric refrigerator as a means of building summer candy business. The merchant was shrewd enough to recognize the possibilities if the unit would work, and accepted the installation on trial. He naturally kept it. He was so successful in building summer candy business that several other druggists have since ordered similar installations. Although Phoenix temperatures sometimes run to 120 degrees on the street during the summer, druggists who have these installations report that their candy sales go right on, because they are able to offer fresh packaged candies in midsummer—something quite unheard of in Arizona until recently.

Incidentally, these installations have demonstrated again the ability of the electric refrigerator to stand up under the most severe conditions. Because of the intense heat of Arizona and the big job these candy preservation units are called upon to perform, the motor has a pretty steady job; yet in no case has the installation failed to come through with perfect refrigeration, according to the merchants who are using the installations, and J. S. Arnold, sales promotion manager of the Central Arizona Light & Power Company.

## BRITONS

### Are Watching Frozen Foods

London, England.—The progress of quick-frozen food in the United States is being followed here with the keenest interest by both the food and refrigeration industries.

Comments on the work being done in the United States and other countries usually takes the form of a warning to the British industries directly concerned. Their business newspapers inform them that they must not lag behind in this modern movement, which may change methods of food production and distribution the world over. A recent editorial in *Ice and Cold Storage* says:

"There is every evidence that refrigerating engineers abroad are actively applying themselves to the subject of quick-freezing. In France, Germany and America continual investigation and research goes on, with a view to developing satisfactory and economical processes. There is no doubt that those who are engaged in the cold storage industry in this country are not unaware of what is going forward, and that activity here in the same direction is also taking place. It is important, however, that we should remain in the van of progress, and that effort be made to evolve such methods as will keep our development here abreast of that going on in other countries.

"There is little doubt that the quick-freezing system will have far-reaching effects on the merchandising of all the various products that come within the scope of the refrigerating industry, and that many fresh developments in retail trading will result."

## BERRIES

BERRIES of various kinds, especially strawberries, are being frozen in the Northwest and marketed in various cities. A big consignment of frozen strawberries from Oregon recently reached New York, where they have not been as familiar as in other cities. The United States Department of Agriculture has been investigating methods of freezing berries and has recently issued a bulletin entitled, "The Frozen Pack Method of Preserving Berries in the Pacific Northwest."

## Coverage

THIS section of ELECTRIC REFRIGERATION NEWS, printed on yellow paper because scientific investigation has shown that black on yellow is not as hard on the eyes as black on white, is the second Refrigerated Food Section.

Following the same active policy which has thus far distinguished the history of the News, the Refrigerated Food Section will keep its readers in touch with the latest developments in the cooling, chilling and freezing of foods.

## REPEATERS

Springfield, Mass., April 8.—An announcement made today by the General Foods Corporation in its local advertising stated that seventy-four per cent of all persons who bought Birdseye Frosted Foods last Saturday were repeat customers. This statement was prominently displayed.

## POPULARITY

### Of Frosted Foods Forges Steadily Ahead in Springfield

Springfield, Mass., April 8.—The introductory sales campaign, conducted by the General Foods Corporation to test the public acceptance of quick-frozen food, has now been in progress for a little more than five weeks, and there is every indication that the results have been more than satisfactory. Sales figures have not been made public by the General Foods Corporation, but unofficial observations reveal a continuing interest in the new products.

A variety of methods, beginning with a well planned advertising campaign, have been employed by General Foods to stimulate and hold interest in the Frosted Foods prepared by the Birdseye process, which are on sale in a number of selected stores here. From the opening day of the campaign, the response was favorable, even more favorable at the outset than the General Foods officials had anticipated. Since then everything has gone along smoothly, so smoothly that several of the General Foods officials who were actively on the job here at the start, have found time to get away from Springfield and attend to other duties. Marion Harper, vice-president, who is in general charge of the campaign, has been among the absentees for the last few days. He is expected back shortly.

Meats, vegetables, fish and fruit, all quick-frozen, and sold from low temperature display cases especially made for the tests here, are running each other a close race for popular favor. The fact that the campaign began on the second day of Lent has doubtless had its effect in keeping the meat sales at a lower level than would be the case at any other time of year, but in spite of the handicap they have been satisfactory.

With the advent of warmer weather, the cases used for display and storage will undergo a much more severe test than has been their lot thus far. The humidity in the Connecticut Valley is high, and that means that the cases will be called upon to withstand considerable punishment. The manner in which they perform in the remaining weeks of the campaign will be followed with great interest by both the producers of quick-frozen foods and the refrigeration industry. It is generally recognized that success in marketing quick-frozen products will depend largely on the provision of proper equipment to handle them in the retail store, and the results obtained here will help to furnish the answer to that question.

Although the sales campaign has been in progress here but little more than a month, it has established a standard for many buyers they will be loath to relinquish. While no hint has been given locally as to the next move of the General Foods Corporation in testing the market demand for the products, it is assumed that the experiment soon will be extended to some other locality, possibly.

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## SAFETY

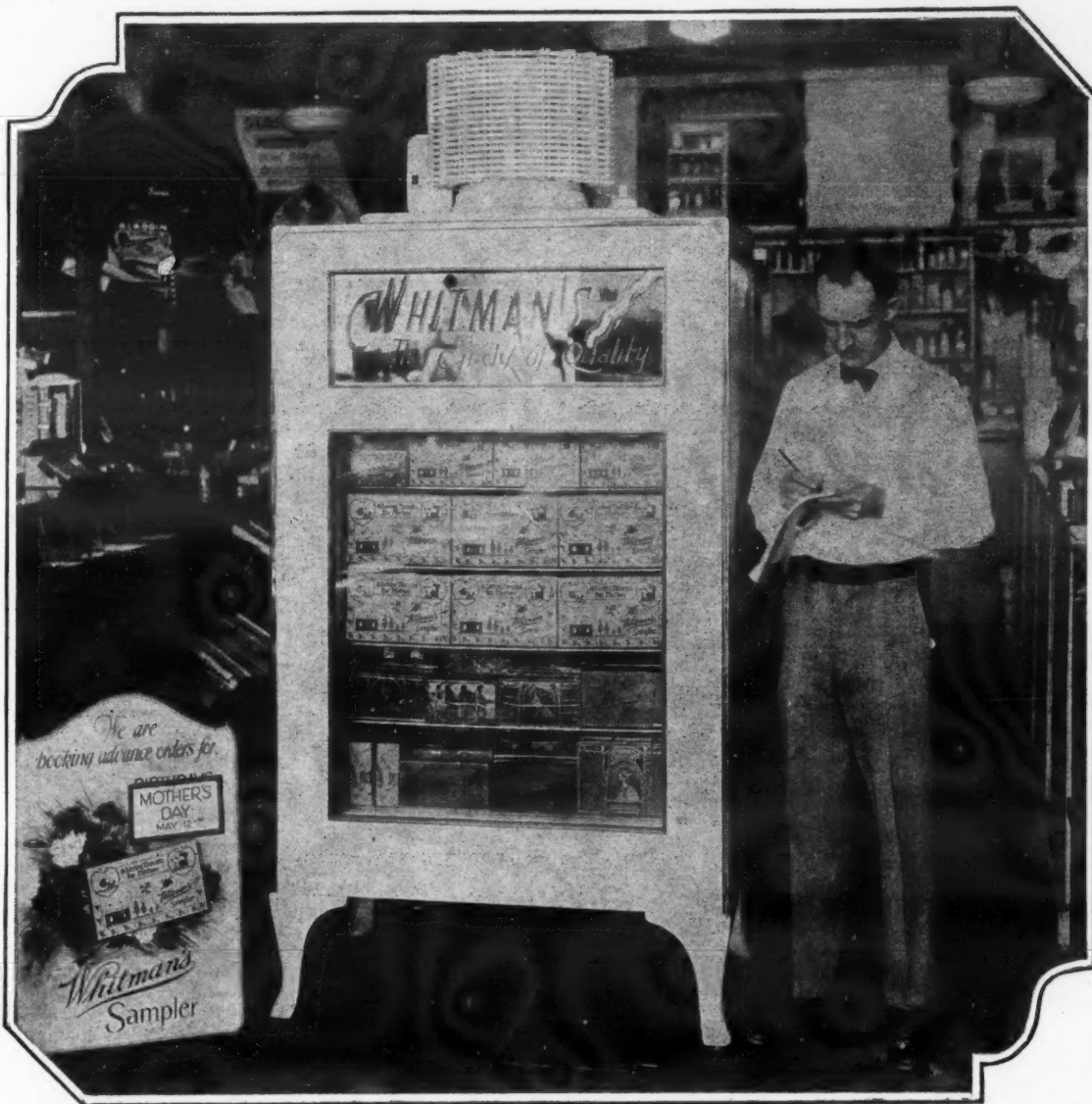
### New Protection for Food

PRODUCERS and manufacturers of food products are co-operating with the American Medical Association in its arrangements for testing foods and placing its seal of approval on those that fulfill that organization's exacting requirements. The Association's testing laboratories have been open to food since the first of the year, and in that time more than one hundred manufacturers have voluntarily submitted their products.

The American Medical Association has maintained laboratories for testing drugs and medicines for many years, and now is simply extending the same system to foods. Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, is chairman of the committee which passes on foods. With him on the committee are six other physicians.

Products which have been approved will be entitled to use the special seal which records that they have been accepted by the American Medical Association.

## Outwitting the Climate



Crammed With Candy

## KOLBE

### Freezing Methods Described

THERE are two distinct quick-freezing systems under the Kolbe patents. They are both of the pan or container type, rather than plate or belt type. One of them, the floating pan type, is a single surface contact freezer. The other, the diving bell type, is a two surface contact freezer.

Quite naturally, the single surface contact machine is used for thin cuts of meat and fish, or for small individual products, such as berries, peas and similar small fruits, fruit juices and vegetables. The double surface contact machine is used for thick cuts of meat or fish, whole fish, fowl, packaged forms of products of all kinds, such as meat cuts, sausage, trimmings, offal, hamburger, cuts of chicken, spinach, berries, shrimp, flaked fish, block fillets, crab meat, etc.

Data on the newer design of this freezer is not completely available, but an explanation of the original styles and a partial explanation of the new design will give a good idea of the major principles.

Low temperature brine (minus 10 deg. F. to minus 20 deg. F.) is circulated through 24-inch wide raceways, and on the surface of the stream are floated thin metal containers or flat-bottom pans of about 3-inch depth and 22-inch diameter. The brine carries the pans along its course at a speed somewhat less than the brine travels, thus getting a rapid heat exchange between the relatively warm product and the refrigerating medium.

The product is "panned" either naked

or on wrapping material. It thus gets intimate, indirect contact with the brine. The contact surface of the product freezes tightly to the flat metal surface, thus preventing distortion. The pans are automatically launched, and as they complete the raceway circuit they are

(Concluded on Page 4, Column 4)

## Wauketa

THE long arm of the ice cream industry reached out the other day to retrieve an ice cream cabinet that had gone astray. Several years ago the good ship Wauketa made daily trips from Detroit to Port Huron, and the Arctic Ice Cream Company of Detroit placed one of its cabinets aboard her, which provided delicious ice cream (at a price) for overheated voyagers. In 1928 the Wauketa was sold to an Eastern organization, which took her through Lakes Erie and Ontario, down the St. Lawrence and finally along the Atlantic Coast to New York, where she now runs during the summer months between New York and Rye Beach.

When she departed she took the ice cream cabinet with her. In taking inventory recently the Arctic Company came across records of the missing cabinet. The Wauketa was traced to Newburgh-on-the-Hudson, where she was laid up for the winter, and her present owners were asked to relinquish the cabinet. They did so willingly, and it is now on its way home to Detroit.

## SUBURBAN

### Stores Have Big Chance

ONE subject that always provokes discussion when quick-frozen foods are mentioned is the type of retail outlet in which they can best be sold, especially during the period when they are being introduced to the public. At Springfield, Mass., where the General Foods Corporation is conducting its test campaign, different types of stores are being utilized, including a chain of Thrift Stores, in which the customers wait on themselves, placing the goods they select in baskets and paying as they leave.

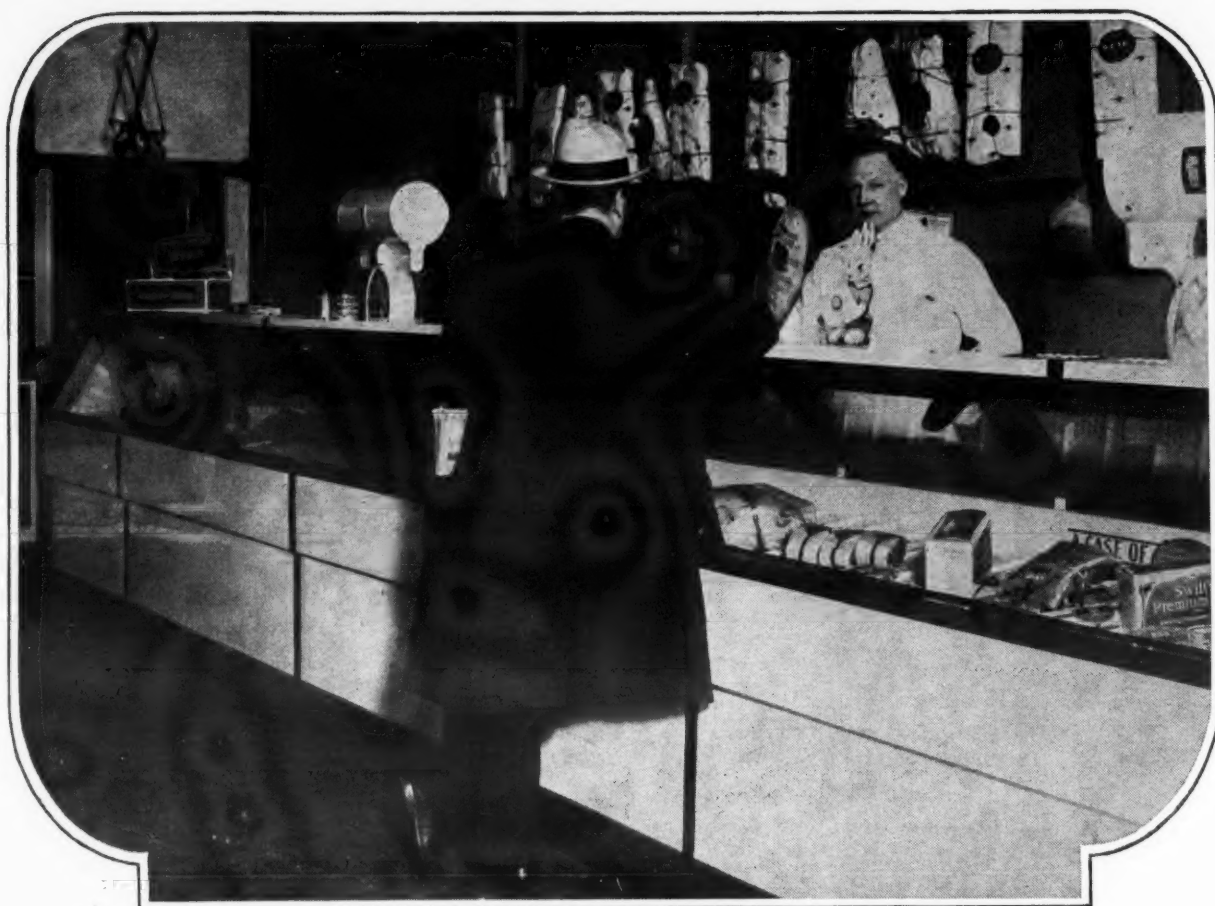
An entirely different type of store is selling Swift's line of quick-frozen food in the Detroit territory. Out in Grosse Pointe, just beyond the Detroit city limits, R. A. Plotzer is selling a constantly increasing volume of the new frozen products. This meat store has a wealthy clientele, and only the best cuts of fresh meats can be sold. For example, it is practically impossible to sell round steaks in the Grosse Pointe store, and the rounds are sent back to the other Plotzer stores in Detroit, where they can be disposed of without difficulty.

Much of the actual buying in the Grosse Pointe store is done by servants, although a good deal is done more or less spasmodically by the actual customers. Jack Charlesworth, manager of the store, who learned the butcher trade in England, says that the Grosse Pointe ladies start in every now and then to do their own shopping, but don't keep it up

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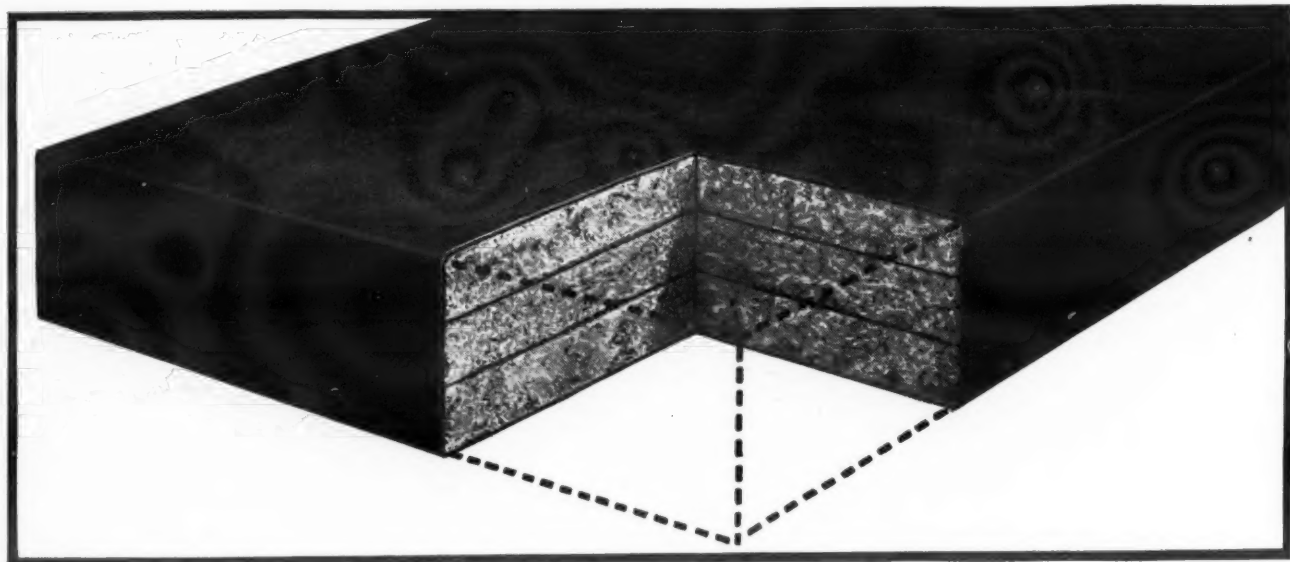


## Quick Frozen Meats Win Acceptance in Fashionable Community



Swift's Hard Chilled Meats on Sale at Grosse Pointe, Mich.

## 5 important points in Insulation for Mechanical Refrigerators



## You'll find them all in this BALSAM-WOOL SEALED SLAB

- Highly Efficient:** Balsam-Wool is a felted, wool mat, made from wool. Its millions of tiny fibres contain "dead" or still air—next to a vacuum, the best insulation known.
- Labor Saving:** Balsam-Wool Sealed Slabs are made to any length, breadth, thickness. Wrapped in tough, waterproof paper. Hermetically sealed.
- Semi-Rigid:** Flexible enough to fit snugly. Rigid enough for easy handling. They come to you ready to install. And once in place, Balsam-Wool Sealed Slabs are there to stay.
- Carefully Sealed:** In addition to their high efficiency, Balsam-Wool Sealed Slabs are

odorless, vermin-proof, sanitary, and are carefully sealed against moisture.

- Regularly Tested:** Balsam-Wool Sealed Slabs are regularly tested for uniformity and efficiency in our well equipped laboratories. Tests made by impartial authorities show that the average thermal conductivity of Balsam-Wool does not exceed 6.0 B. t. u. per square foot, per one inch thickness, per one degree Fahrenheit difference in temperature in 24 hours.

Let us send you free, a Balsam-Wool Sealed Slab, together with engineering data that proves the high efficiency of this practical insulation. Write our nearest sales office.



A guaranteed Weyerhaeuser product

## WOOD CONVERSION COMPANY

Mills at Cloquet, Minnesota

Industrial Sales Offices:

360 N. Michigan Ave., Chicago

3107 Chanin Bldg., New York

3084 West Grand Blvd., Detroit

Manufacturers of Balsam-Wool Insulation for Domestic Refrigerators, Motor Buses and Airplanes; Balsam-Wool Refrigerator Car Insulation and Passenger Car Insulation; Balsam-Wool Standard Building Insulation and Nu-Wood Insulating Board

## SUBURBAN

(Continued from Page 1, Column 4)

very long. After a little they resort to the telephone, and then begin to send in their butlers and housekeepers. The store has two crowded periods, about eleven in the morning and after three in the afternoon.

The price factor is absent at Grosse Pointe. In other stores it has proved difficult to make the purchaser understand that even though the quick-freeze meats cost more per pound, the actual cost is lower because the waste has been removed and the purchaser is getting a package of meat that is practically 100 per cent eatable. At Grosse Pointe the prices are the same for both kinds of meat. A fresh porterhouse steak costs 65 cents per pound, and a quick-frozen and packaged Swift porterhouse also is sold at 65 cents per pound. Both are cuts of high quality. The result is that the quick-frozen meats are steadily gaining in popularity, and with the return of a large number of his customers from the South, Mr. Charlesworth expects to sell from 40 to 50 pounds a day. At present his daily volume of quick-frozen meats is lower than that, but he is confident that the steady increase will be continued.

He attributes the acceptance of the quick-frozen meats to the missionary work done in the last two or three years by the producers of quick-frozen fish fillers. "The people out here have been eating frozen fillets for a long time," he said, "and they are very popular. On Fridays I usually sell about fifty pounds of them. I don't have to talk about them; everybody asks for them. They help a lot to introduce the meats, and I expect to see the meats become just as popular before long."

The Plotzer Grosse Pointe store seems to indicate that wealthy suburban communities are a good field for the introduction of quick-frozen foods. Quality is more important than price in such places, and the quick-frozen foods seem to fill the bill so far as quality is concerned.

Swift & Company's Detroit branch is selling quick-frozen meats to a number of stores throughout the city, although the others are not carrying so many items as the Grosse Pointe stores. A Hussmann display case filled with the frozen products is a conspicuous feature in the Swift branch on Gratiot Avenue, and has elicited inquiries from many customers. The same policy is being pursued in other cities. An official pronouncement of the Swift policies in regard to the new products was printed recently in the 1930 edition of the Swift & Company Year Book. It reads:

### SWIFT & CO.

#### Is Leader in Quick Freezing

NO development in recent years has aroused more interest in the packing industry than the preparation of identifiable packaged meat cuts in the packing plant. Swift & Company believes that this method of marketing fresh meat is sound, economic, and in step with present living and buying habits; hence, it has originated and pioneered the development and merchandising of meat in identifiable packages. The company has taken steps to protect its rights with reference to the production and merchandising of identifiable packaged meats by numerous applications for patents now pending.

#### A Development Based On Modern Merchandising

The basis of this development is found in modern merchandising practice. The general trend towards foods in consumer packages is well known. Years ago, almost all dry groceries were sold in bulk, but the greater sanitation and convenience of the modern package has almost universally won the favor of consumers. In conformity with the trend of the times, Swift & Company for many years has been selling some of its meat products, such as bacon and lard, in convenient packages. The sale of these packaged products has increased rapidly, and indications point to even more rapid growth in the future. These developments have convinced Swift & Company that modern merchandising practice calls for a still further extension of the work of preparing packaged meat cuts in the packing plant.

#### Swift's Premium Cuts in Packages

As a result of extensive research, Swift & Company has made possible the selection and packaging of meat cuts at the packing plant, with freshness sealed in by a new and original method. These cuts can be transported to the retail shop in the same prime condition as when cut from the dressed animal.

We have been working out the details of packaging the popular meat cuts, such as steaks, chops, and roasts for distribution to the retail trade. We have put into convenient packages under our Premium brand the best cuts of beef, lamb and pork which are of superior quality and easy to identify.

#### A Forward Step in Merchandising

Swift & Company has also taken a forward step in the marketing of poultry

try in identifiable packages. The finest milk-fed chickens and fowls are fully dressed and drawn at the feeding station. Each bird is prepared for the oven, before being subjected to a quick-freezing process. The heart and gizzard are wrapped in wax paper and replaced in the bird. This process eliminates all parts that the consumer cannot use and prepares the bird so that its natural juices, flavor and nutritive value are fully retained. Birds of the highest grade are placed in individual cartons and labeled with the "Swift's Premium" brand.

By this procedure we assure the public of uniform, high quality meats and poultry, not only because the process preserves them in their original freshness, but also because choice products can be selected in the packing plant by expert graders and greater uniformity of quality can thus be assured. Our experience justifies the conclusion that there is a new and important function here for the large packer to perform in improving still further the present efficient system of meat distribution.

#### Public Approval Seems Assured

Swift & Company believes that the American public will welcome this method of preparing and marketing meats and poultry when its numerous advantages are understood. The marketing of retail meat cuts in identifiable packages means that the consumer can purchase meat with a guarantee of quality. Swift's Premium packaged lamb chops, pork chops, and steaks carry to the consumer the same assurance of quality that for years has been recognized in Premium Ham, Premium Bacon, "Silverleaf" Brand Pure Lard, and other verleaf Brand Pure Lard, and other branded products of the company. The housewife who does her own shopping will appreciate the greater promptness with which she can be served with ready packaged meats. In view of these advantages there seems little doubt that the general preference for packaged goods will extend to packaged meats as soon as the housewife is convinced that this method of preparing them is to her advantage, from the standpoint of quality, economy and convenience.

The marketing of consumer cuts on a nation-wide scale will simplify the retailer's problem by enabling him to know just what each product costs, by speeding up his turnover, by reducing his trimming and shrinkage loss, and by enabling him to carry a larger assortment of goods with a smaller investment. This method also enables the retailer to handle only those cuts that are in demand by his trade.

At the present time the company is offering a wide line of identifiable packaged meats. The list of cuts now available, together with those which will be made available in the near future follows:

#### Cuts Now Available

##### Pork Cuts

Premium Pork Chops, Selected Pork Chops, Coral Pork Chops, Coral Pork Loin Roasts, Premium Pork Tenderloins, Coral Pork Tenderloins.

##### Fancy Meats

Swift's Sliced Calf Livers, Swift's Sliced Beef Livers, Swift's Calf Sweetbreads.

##### Lamb Cuts

Premium Lamb Rib Chops, Premium Lamb Loin Chops, Premium Leg of Lamb, Premium Shoulder of Lamb, Premium Rolled Lamb Loin Roast, Coral Lamb Chops, Coral Lamb Stew, Coral Rolled Breast of Lamb.

##### Poultry (Drawn)

Premium Milk-fed Spring Chicken, Premium Milk-fed Fowl.

#### Cuts Available Soon

Premium Porterhouse Steak, Premium Club Steaks, Premium Round Steaks, Premium Sirloin Steaks, Premium Rib Roasts, Premium Rump Roasts, Premium Rolled Rib Roasts, Premium Beef Short Ribs, Coral Shoulder Roasts, Coral Shoulder Steaks, Coral Beef Stew, Hamburger Meat (1-lb. and 2-lb. packages), Premium Veal Cutlets, Premium Veal Chops, Premium Breast of Veal, Premium Veal Shoulders, Premium Veal Leg, Coral Veal Stew, Swift's Ox Tails, Premium Pork Ro-Tee, Swift's Pork Cutlets.

It is a huge task to make these packaged meats available everywhere. Complete nation-wide service must wait on a gradual adjustment of Swift & Company's distributive system to the new products. General distribution depends somewhat on the rate at which retailers equip their stores for the handling of these cuts. However, we believe the time will soon come when all the housewife has to do to insure quality in the entire meat line is to phone or ask her dealer for "Swift's Premium."

### NEW KELVINATOR DEALER IN DES MOINES

Des Moines, Iowa.—The Van Dyck Plumbing and Heating Co., of 929 Sixth Avenue, has been appointed a wholesale and retail dealer for the Kelvinator line.

W. F. McCown, of the Van Dyck firm, will have charge of sales. A complete service department will be maintained.



# New in design Outstanding in value

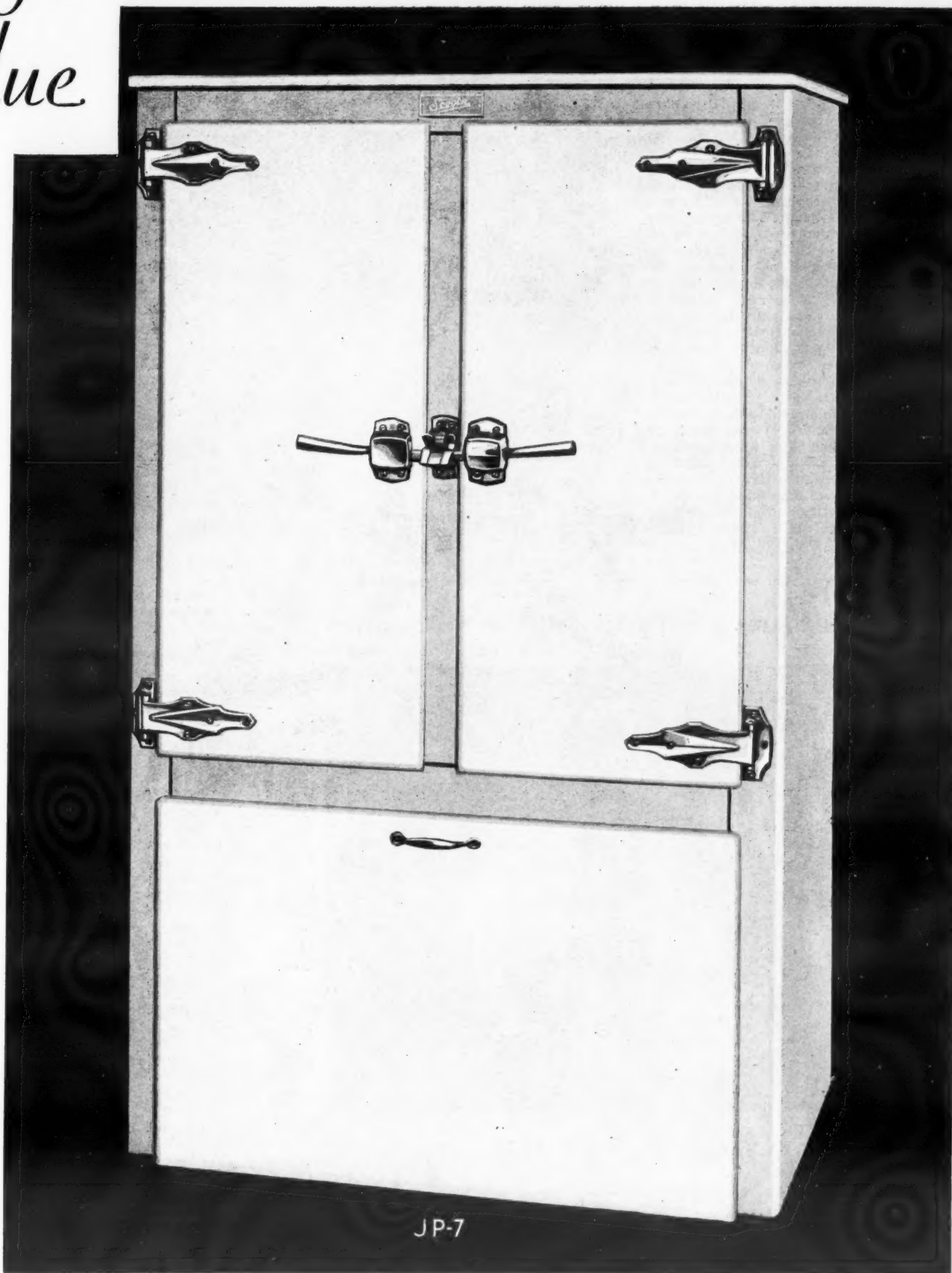
QUICK and easy sales are the outstanding features of the new line of Cabinets by Seeger, as they have acknowledged Seeger Quality, and can be sold where price is a consideration.

Exterior of gray porcelain with white porcelain doors, interior of white porcelain, these Cabinets are constructed with the character, inherent in Cabinets by Seeger for many years. Insulation is adequate...construction sturdy...interior arrangement convenient...hardware bright chromium plate.

## SEEGER REFRIGERATOR COMPANY

Saint Paul, Minnesota

389 Madison Ave. New York, N. Y. 26-28 Providence St. Boston, Mass. 655-657 So. La Brea Ave. Los Angeles, Calif. 228 No. La Salle St. Chicago, Ill.



CABINETS  
BY

*Seeger*

SAINT. PAUL



## HUSSMANN

### Co-operates With Packers

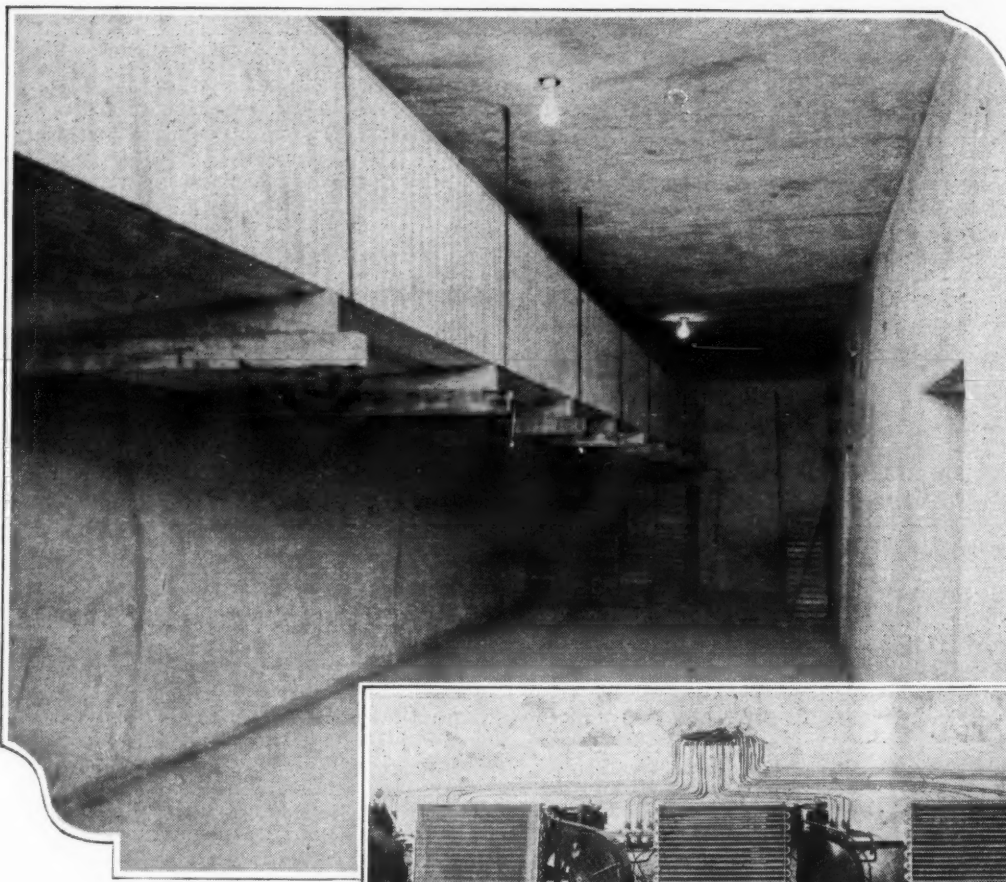
DURING the past few months the Hussmann Refrigerator Division of the Allied Store Utilities Co., St. Louis, Mo., has been co-operating with Swift & Company in displays of quick-frozen meats. Equipment for displaying the new products has been furnished by Hussmann, and these displays have been attracting considerable attention in a number of large cities.

To interest the retailer of meats, Swift & Company set up these displays at the home office in Chicago and in branches in East St. Louis, Ill.; Detroit, Mich.; St. Louis, Mo.; Boston, Mass.; Philadelphia, and a number of other large cities. The attractive displays of the quick-frozen meats in the Hussmann cases were so arranged to catch the meat retailers' attention. At the Detroit branch the Hussmann case was right near the door where one enters the building and the buyer could not pass by without stopping for a moment to inspect the contents. The cases were kept at the temperature needed to refrigerate the hard chilled products.

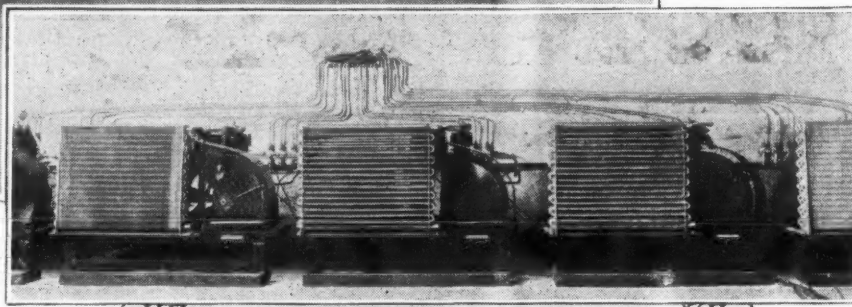
The photograph on page one of the last Refrigerated Food Section of the News showed a young lady inspecting the quick-frozen meat display at the Detroit Swift branch. Here a good view of the new products in the Hussmann case was obtained.

At the recent series of conventions held by the Allied Store Utilities Co. in various cities, much attention was given by the speakers to the developments which the member companies are making to meet the demand for equipment for handling the quick-frozen products. The entire sales organization which attended these meetings has been equipped with all the latest data on these developments.

## Apple Cooling



Forest Imperato Uses Frigidaire equipment



diving bell. The upper or cover pan being inverted, entraps the air which lies beneath it. This air space lies around the sides of the bottom pan (the smaller of the two) and as the pans are submerged together the air is subjected to slight compression.

The product is first placed in the smaller, lower pan. This gives the bottom contact. Then the upper pan is inverted and pressed down to bring its flat top surface against the upper surface of the product. The thickness of the product then has to be greater than the depth of the lower pan.

The two pans form a unit and are carried down into the brine and continued submerged for an exactly controlled freezing time. The brine is kept in motion by the circulating pump, which forces it through the brine cooler. Either continuous or batch mechanism can be used in the diving bell system. The choice depends upon plant conditions and upon the nature, thickness and quantity of products being frozen.

Besides being particularly suited to freezing products of great thickness, the diving bell equipment has great compactness and capacity. The contact between product and freezing surface is never broken and the product retains its shape.

The freezing time with this type of freezer ranges from a fraction of an hour to nearly two hours where the thickness ranges from 1½ inches to 3½ inches. This, of course, is dependent upon brine temperature and insulation around the product.

## CENSUS

### Bureau Asks Co-operation

By Joseph A. Hill,

Assistant Director, United States Bureau of the Census

THAT this is an electrical age can be amply substantiated by lengthy questionnaire covering the manufacture of electrical machinery and apparatus being used in the current biennial census of manufactures by the Bureau of the Census.

The questionnaire has 14 pages of inquiries, although a four-page questionnaire serves for many of the manufacturing industries. For the products of the electrical industry 35 headings are required, and each is followed by a multiplicity of inquiries covering everything electric, from generating apparatus to door bells and from electrotherapeutic and electromedical instruments to waffle irons.

Like industrial and commercial establishments, the modern household is now filled with electrical appliances. Those for which data are collected in the manufactures census include vacuum cleaners, washing machines, electric refrigerators, electric clocks, air heaters, disc stoves, domestic ranges, flatirons, grills, heating pads, percolators, waffle irons, toasters, water heaters, immersion heaters, electric fireless cookers, ironing machines, lamps, radio and radio accessories, and curling irons.

Of the advantages which will accrue to manufacturers of electrical products as a result of the Census of Manufactures, the first and foremost probably will be the compilation of numerous preliminary reports, each of which will give figures for quantities and values of the several kinds or classes of products made within the electrical industry. These reports in the aggregate will cover hundreds of kinds or classes of products, and each will be published within a short time after the receipt of complete returns for the industry which it represents. These preliminary statistics will show the increase or decrease in output of electrical commodity, so that the individual manufacturer can

(Concluded on Page 9, Column 1)

## The Chief Answers the Junior Salesman



Say, Chief, what is "blotting action"?

"You know how a blotter sucks up ink . . . that's 'blotting action' . . . the tendency to absorb moisture."

Insulation that has "blotting action" draws refrigerator moisture inside and holds it.

Corkboard is different  
Its cellular structure forbids 'blotting action'.

It cannot absorb moisture.  
And, that's why corkboard insulation gives full protection year after year after year."

## Novoid Corkboard Insulation

CORK IMPORT CORPORATION



345 W. 40TH ST., NEW YORK

"Permanent Protection for All Refrigeration"

A FEW miles west of Highland, in Ardonia, N. Y., are two fruit growers with a heritage of Italian ancestry, Raymond Ambrosina and Forrest Imperato. Before coming to America, Mr. Ambrosina was a grower of fruit on the sunny hills near Naples, while Mr. Imperato, a native of New York State, has family ties that reach over the ocean to Sorrento.

The last harvest season found each of them enjoying the convenience of a Frigidaire apple cooler, believed to be the first two commercial Frigidaire apple coolers installed in the United States.

The cooler on Raymond Ambrosina's place is 36 feet by 14 feet by 12 feet high, and is cooled by four Frigidaire compressors of 1½ horsepower each. The capacity is between 500 and 600 barrels. The other cooler, Forrest Imperato's, which holds about a hundred barrels more, is 48 feet by 12 feet by 11 feet high, and is cooled by five similar compressors.

When the doors open and you step into the coolers, the fragrant odor of fresh apples greets you. Instead of bulging barrels, square crates hold the fruit. This not only allows the most economical use of storage space, but provides for circulation of air through all the fruit. Between the slats of these crates the apples form colorful stripes with the green and red and yellow of their smooth roundness showing through.

The market for this fruit is the metropolitan district, chiefly New York and Newark. Huge trucks drive up to Ardonia and travel back again laden with Hudson Valley fruit. So well insulated are these trucks that even on the coldest days the apples reach their destination without being touched by the frost.

At harvest time, quantities of apples are sold immediately after they have been picked. But the choicest ones are stored away in the Frigidaire coolers, where their flavors and crispness are preserved to be even more tempting in winter and spring than in the fall when fresh fruits are abundant. And the fruit growers themselves are able to hold their produce for this later market, instead of disposing of it early, or storing it somewhere else. Both Mr. Imperato and Mr. Ambrosina find that having their own Frigidaire storage compensates them in more ways than one. Not only are the apples given the best of protection, but they can be looked over at their convenience, and, when shipments are to be made, the transactions take place on the owners' property. While apples form the most important part of the fruit raised by these two men, pears, peaches and grapes are also grown, and kept in the Frigidaire coolers when market conditions make this desirable.

The Frigidaire equipment used by these two Ardonia fruit growers was sold by K. R. MacGhee, of the Central Hudson Gas & Electric Corp., assisted by an engineer from the Domestic Electric Company, Frigidaire distributors in New York City.

## KOLBE

(Concluded from Page 1, Column 3)

carried out by a conveyor which defrosts the bottom surface and releases the frozen pieces.

Speed of freezing is accurately controlled so that all products come out just as soon as they are completely frozen and do not remain in the freezer overtime. This gives a maximum of production and a minimum of space and investment per unit output. Easy regulation is accomplished simply by adjusting the speed of the out-conveyor and the launching device.

Another feature is the uniformity of results from one pan to another and from one product or piece to another. The freezing time and the final temperature are exactly the same through a given thickness or kind of food being frozen.

The raceway circuit has usually been laid out back and forth over an available floor area to secure required length and proper number of pans in the stream at a time, hence the number per minute or per hour coming out. Later designs have the raceways tiered up to form more of a cubical structure, thus occupying a smaller floor area. This permits greater production per foot of floor space, reduces the investment in insulation, reduces insulation losses, and forms a machine which can be installed in batteries for quantity production. It is easier to adopt the tiered-up unit to plant space. A machine of this new style having a capacity of approximately 3,000 pounds per hour of thin fillets (haddock) occupies a space of only 58 ft. x 8 ft. x 8 ft. It can be fitted into a bay in almost any building. Smaller lengths are available; also smaller units in other dimensions down to a tiny unit for experimental work.

For fish and meat cuts the freezing time of this style equipment is approximately 40 minutes. For coated or uncoated fruits and vegetables panned naked on the bottom, the freezing time is roughly about the same average. If the products are in containers or heavy wrapping, the freezing time ascends over one hour.

The labor required to operate the floating-pan freezer is exceedingly low. The pans and products do not receive any manual attention from the "panning" line to the wrapping table.

### Diving Bell Freezer

In this system the thin metal container is in two sections and is so arranged as to operate submerged, instead of floating, and to give the product two surfaces of intimate indirect contact. Since the time of freezing varies directly with the square of the thickness of product, the diving bell equipment is best adapted to the freezing of heavy, thick products, either individually or in blocks, either naked or wrapped.

The principle is similar to the marine

## E. T. L. Service for Domestic and Commercial Electric Refrigeration

Testing and experimental laboratory service for Manufacturer, Distributor, Central Station—  
Test data exclusive property of client.

ELECTRICAL TESTING LABORATORIES  
80th Street and East End Avenue, NEW YORK CITY, N. Y.

## ATTENTION

### Service Managers of Cabinet Service Departments

By having J. Moss & Sons replace your monel tops, panels, collar rings, revamp old lids like new, and other worn or broken parts, your present ice cream cabinet can be reconditioned to look and wear like new.

We give you the highest quality obtainable and our prices will save at least 20 per cent on replacement expenditures. And you can depend on our prompt service. Write or wire for price lists and additional information.

Also Manufacturing Sheet Metal Parts and Stampings

J. Moss & Sons  
630 Hudson St. New York City



# WHAT WE DO FOR YOU AS A FRIGIDAIRE DEALER

The Frigidaire factory and distributors realize the importance of direct mail in turning prospects into customers. So we furnish you with direct mail material on the most liberal basis in the entire industry.

We appreciate the value of effective window displays in attracting attention to your showroom. So we supply you with a complete window display service—with frequent changes—at only a fraction of the actual cost.

We understand the force of local newspaper advertising in helping you gain and hold leadership in your community. So we share the expense of your local newspaper advertising on a generous basis.

Above all, we realize that the most important sales aid we can provide is a better product. And we give you *that*—a product with *every* feature that modern refrigeration demands.

Modern refrigeration demands fast freezing of ice and dessert. So Frigidaire is equipped with the "Cold Control."

Modern refrigeration demands moist cold for vegetables. So Frigidaire introduced the Hydrator.

Modern refrigeration demands sanitary cleanliness. So the Frigidaire mechanism is completely enclosed—out of sight and out of the way.

Modern refrigeration demands convenience in storing and removing food from the cabinet. So Frigidaire shelves are up where stooping is unnecessary.

Modern refrigeration demands a lasting finish for the cabinet. So Frigidaire is Porcelain-on-steel inside and outside.

With all of these advantages to offer—and with the most liberal plan of factory co-operation in the entire industry—is it any wonder that Frigidaire dealers everywhere can point to an unequalled sales record? Is it any wonder that there are three times as many Frigidaires in use as any other make of electric refrigerator?

FRIGIDAIRE CORPORATION, *Subsidiary of General Motors Corporation*, Dayton, Ohio

# FRIGIDAIRE

*Electric Refrigerators for Homes, Stores and Public Institutions . . . Electric Water Coolers for Homes, Stores, Offices and Factories . . . Ice Cream Cabinets . . . Milk Cooling Equipment . . . Room Coolers*



## POPULARITY

(Concluded from Page 1, Column 5)

sibly at a considerable distance from here and in a different type of community, but there is also a strong belief in retail trade circles that the sale of the foods will be continued in some Springfield establishments, as a means of fostering and conserving the favor forthcoming thus far.

There is no question about the favorable attitude of merchants in relation to these refrigerated foods, even though they have made no formal statements—that is, merchants who have shared in putting on the campaign. They speak of it with unfeigned satisfaction. It is generally agreed that the sales have been good and customers satisfied, and also that the presence of the quick-frozen food departments has been the means of bringing many new customers who are purchasing other lines of goods from these stores. In other words, these stores find this innovation a healthy tonic for their business.

Persons who are making a study of the experiment in its technical aspects, however, express the opinion that leaders in the new school of food marketing are as yet all at sea in respect to methods and devices to be adopted permanently in the packing, transporting and merchandising of the products. The fact that the public is so well pleased with the products and has virtually no complaints to make concerning them, is accepted as pretty good evidence that the actual job of freezing has been done well. The distribution side is admittedly in an early experimental stage, and widespread interest attaches to the working out of the problems involved.

Refrigerator interests, makers of delivery trucks, railroad men, package machinery manufacturers, and paper mill men who see a promising medium for the extension of their activities in providing material for wrappers and cartons, are no less interested than food merchants in following the new order of things. The possibilities of frozen foods in increasing the demand for cartons and wrappers are tremendous, but it is a field that calls for study and specialized knowledge. It is recognized as mutually important to the refrigeration and packaging interests that right solutions be found to the problems presented.

Dietists, physicians, cooking school instructors and leaders in food chemistry are becoming interested in the foods prepared and sold by the new methods. Here in Western Massachusetts much attention has been paid to this class of problems. Amherst, with its state agricultural college, has made a big feature of home economics, and close by is Westfield, which has won fame as a "pure food town." Hence the experiment was well located to arouse interest in this connection. It is felt that the value of foods thus treated will be well worth investigating, from the standpoint of nutrition and health.

April 4 and 5—Friday and Saturday—proved to be about the biggest days for sales since the campaign was started. On these days the sales of meats and fish rose to high levels, and ideal shopping weather helped the enterprise. In a big advertisement headed, "Taking the Guesswork Out of Meat Buying," the management featured two specials—a combination of a pound of pork chops and two packages of spinach for 44 cents, and a pound of lamb chops and two packages of spinach for 50 cents. Rib roast of beef and boneless pot roast each were sold for 38 cents a pound; leg of spring lamb at 39 cents, and sirloin of beef roast at 49 cents, and pork loin roast at 32 cents. Earlier in the week an advertisement featured loganberries and cherries, with printed recipes for loganberry pie and cherry cobbler.

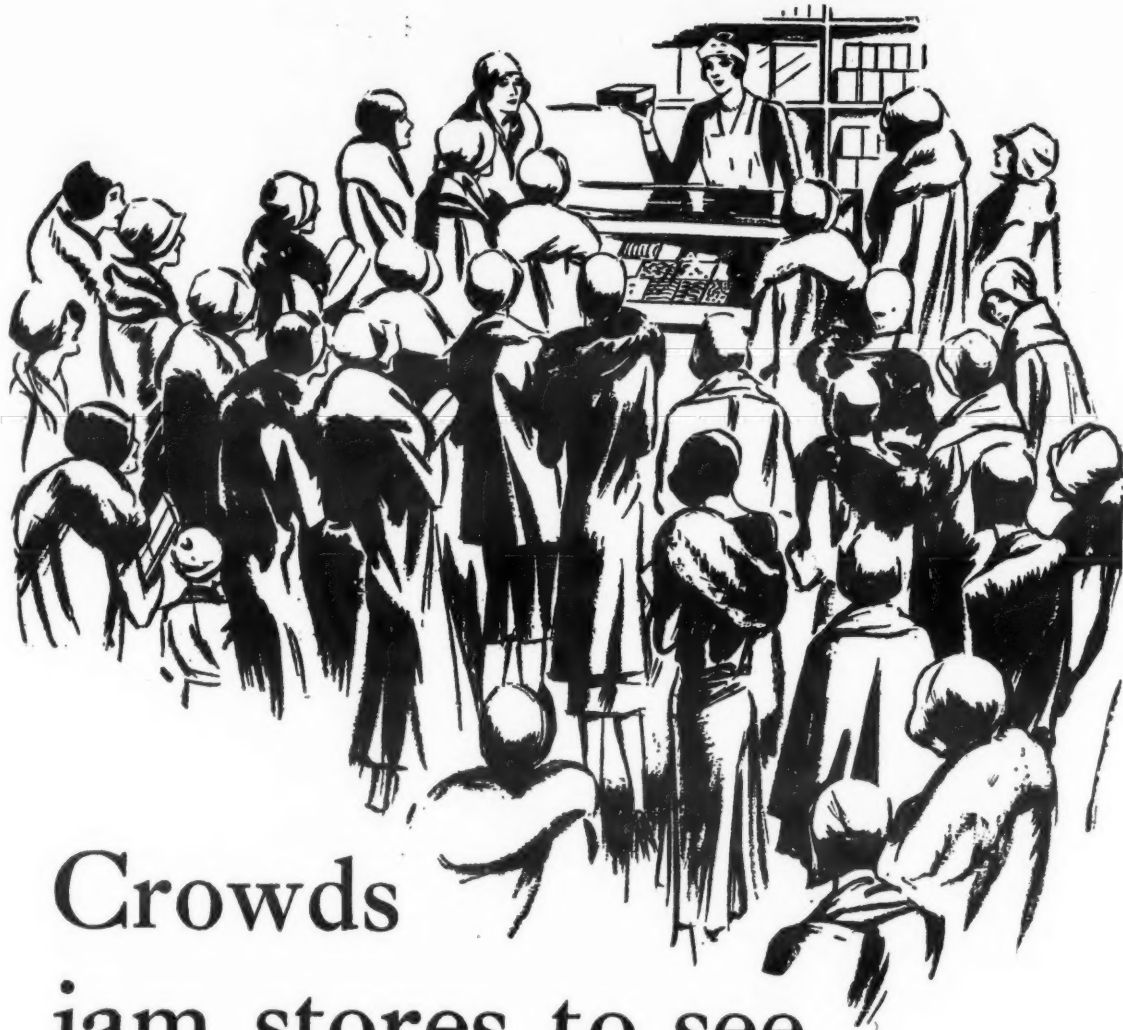
Interest in the demonstrations carried on through the co-operation of the General Foods Corporation and local agencies, has been heightened by a generous provision of recipes for cooking the articles in various ways, each successive day bringing forth new recipes that could be taken home and filed for use. The series of demonstrations in cooking the foods with gas has been concluded, but the demonstrations in electric cooking at the Springfield Women's Club headquarters are still in progress and are drawing interested audiences from many quarters.

An inquiry at one of the larger stores selling the Birdseye line brought out the point that numerous customers have formed the habit of purchasing the frosted foods daily. These are mostly of a well-to-do class, living away from the immediate neighborhood of the store. Some of these customers have remarked that they would not know what to do if the service were withdrawn. One person declared that he would go to Hartford, provided these foods were on sale in that city, rather than go back to the use of meats sold in the ordinary form.

A frosted-food dinner ranging from oysters to raspberries was served to 80 members of the Springfield Lions' Club at the Hotel Kimball on March 31. This was a regular meeting of the club and the members welcomed an opportunity to eat a full-course meal of the new

## Advertising of This Type Has Characterized Springfield Campaign

# Amazing New Foods Attract Thousands!



## Crowds jam stores to see Birdseye Frosted Foods

*Birdseye Frosted Foods* came to Springfield Thursday—and it seemed as though all Springfield turned out to greet them. From morning to evening, the selected stores presenting these revolutionary new food products were crowded with people.

What did these people see—what will you see when you visit these stores? In gleaming display cases, chilled to far below the freezing point, you will see a wide variety of meats, fish, oysters, fruits and vegetables. You will see steaks and chops and roasts with superfluous bones and waste removed, ready for pan or oven. You will see oysters—the fattest Blue Points that ever whetted a Springfield appetite. You will see plump raspberries, tender June peas, and luscious cherries. All

temptingly fresh in appearance—and all frozen by the Birdseye Quick-Freezing Process.

### Convenient to buy Easy to cook!

When you purchase these foods—what a pleasant surprise! *Birdseye Frosted Foods* are handed over the counter as neatly packaged as a carton of sugar. No awkward parcels to bother with.

But the big surprise comes when you cook and eat these foods. All of the work of preparation has been done for you. Spinach has been washed free of sand and grit. Cherries are pitted, peas are shelled. Fish are cleaned and cut, ready for the pan.

And the flavor! Steaks so tender, so juicy. Chops with that piquancy that only the choicest cuts have. Red rasp-

berries that melt in your mouth.

### Uniform quality—always!

When you buy a Birdseye steak or roast—when you buy any Birdseye food—you know it will be just as fine as the last one. For the quality of these foods is assured when they are packaged. And the marvelous Birdseye Process by which these foods are quick-frozen keeps them in perfect condition. You take no chances when you buy *Birdseye Frosted Foods*!

Prove this! See these foods at once! Buy some for Sunday dinner—give your family a real taste-thrill!



foods, prepared by the hotel chef by arrangement between the club and the General Foods Corporation. F. S. Snyder, chairman of the board of the Institute of American Meat Packers and president of Batchelder, Snyder, Dorr & Doe of Boston, was the speaker at the meeting. He envisioned an order by which perfect products, expertly graded and strictly sanitary, would be retailed at prices perhaps lower than those at present for products marketed according to the old methods. This, he said, would not only be a great advantage and convenience to the consumer, but also would result in a better and

more economical system of distribution. The Hotel Stonehaven is serving quick-frozen foods not only on special occasions, but to some extent in the regular menu from day to day. Fillets of sole, meats, peas and raspberries are the items that have been served at the meals thus far with particular satisfaction to the guests. This is likely to be continued indefinitely according to J. Edward Connery, manager, it being deemed well worth while to carry these selected items for the satisfaction afforded by their superior flavor. The high quality of the fish, peas and raspberries has received special commendation at this

house. Whether the use of these foods will be extended beyond this limited scope will depend on the manner in which the development progresses and future prices, Mr. Connery said.

Three features of this new system of merchandising foods are coming in for special attention locally. They are the ease and convenience of ordering foods under this arrangement, the confidence attaching to the purchase of articles of a uniform standard quality, and of a precise weight, and the superior sanitary character distinguishing the plan.

Women attending the demonstrations have stressed the sanitary side, even

above advantages of the new merchandising plan. One woman said:

"Now that I have begun buying my meats in sealed cartons, I cannot bear to purchase and eat meats sold in the old way. The other night I started to procure a steak in a downtown market. Held up by a line of persons in front of the counter, I watched the men handle the meat—weighing it and often returning it to the tray in exchange for some other piece more satisfactory to the customer. I was impressed all at once with the crudity of the whole proceeding, a conviction that I was watching something that was passing out, to make way for a system in keeping with modern efficiency. Instinctively I turned away and sought one of the stores where the frosted foods were on sale."

The opportunity to buy foods in this clean, sanitary way, in prescribed amounts and conforming to strict requirements as to grade and quality, is appealing to local customers with a force equally as great, it seems, as the incentive afforded by the exceptional flavor and texture of the products. Food merchants throughout the city have become impressed with the idea that a new force has arisen that promises to exert a profound influence.

From 300 to 400 tickets are sent out to persons in Springfield and surrounding towns for each of the lectures and demonstrations at the Women's Club building, and an average of 75 to 100 attend. Home economics teachers of the colleges and public schools are interested members of these gatherings.

There is a constant influx here of persons specially commissioned to make observations of the campaign from some angle or other. These include representatives of the large beef packing concerns of the Middle West and the great fruit distributing organizations of the Far West and the South; also engineers and officials of electric refrigerator manufacturers, who foresee an early expansion of the quick-frozen foods selling system over a wide territory. These persons are coming and going, conferring with representatives of the General Foods Corporation and taking personal observations of the methods of handling the foods by local stores. They are animated by a belief that the campaign is destined soon to assume nation-wide scope, and that this will create at once a market demand for the best equipment that can be built to meet the requirements. Visiting refrigeration men express themselves as well pleased with what they have seen of the operations here thus far.

## ARMOUR & CO.

ALTHOUGH keenly interested in quick-freezing developments, Armour & Company has thus far refrained from putting any quick-frozen meats on the market. For more than a year, however, an extensive series of experiments has been under way in the Armour research laboratories. Various methods of quick-freezing have been tried out, and the results tabulated and studied.

As the situation now stands, the Armour officials do not feel that they should go into the market at this time with quick-frozen meat products bearing the Armour label, which is recognized as a sign of quality in every section of the country. On the other hand, if a situation should develop which should make a sudden change of policy necessary, the Armour organization is ready to step into the new field without delay.

When the Institute of American Meat Packers appointed a committee to visit Gloucester and inspect the Birdseye process in action, H. J. Koenig, of the Armour organization, was appointed chairman. He made a thorough study of the matter at that time, and since then has kept in close touch with the developments in the field of quick freezing.

## FISHERMEN

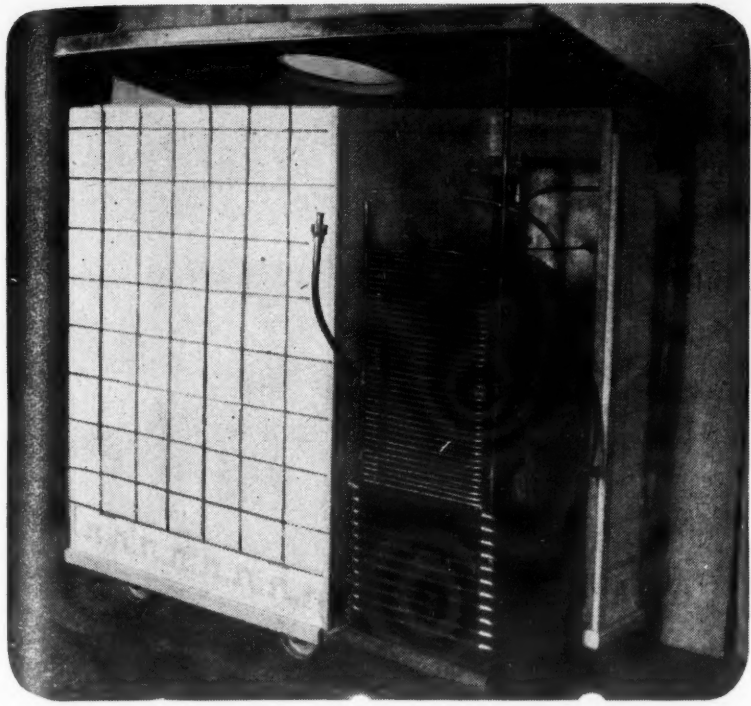
Boston, Mass.—Among the organizations which have been experimenting with, and looking into the possibilities, of quick-frozen products is the O'Donnell Company of this city. For the last four years the O'Donnell Company, which is headed by John R. O'Donnell, with George F. O'Donnell as treasurer and general manager, has been shipping large quantities of fish fillets, shipments sometimes running as high as 200,000 pounds in a week.

The O'Donnell plant is on the Fish Pier and the fish are handled by machinery throughout the process of preparation for the market.

Three of the leading packing companies in the United States have adopted the new quick-freezing method of preserving their meats and meat products and have already begun the distribution of foods processed by this method. Adoption of this new and radical step in meat preservation is likely to have a far-reaching effect on the merchandising methods of meat distribution and is expected to eventually result in greater economies to the packers.—Chicago Journal of Commerce.



## Beverage Counter on Wheels Has Many Uses



PORTABLE beverage dispensing counters are now being offered by W. A. W. Hamilton & Sons, 4337 Clarendon Ave., Chicago, Ill. Equipped with mechanical refrigeration and mounted on rubber wheels, these counters can be used in department stores, hotels, depots, theatres, parks, fairs, etc., whenever an electrical hook-up can be possibly made to the machine.

Refrigerating machine fits in the compartment at the right end of the counter and the uplifted top shows how access can be made to the beverage tank. The

machine refrigerated counters are built in 20, 30, 40 and 60 gallon sizes. All counters are 41 inches high and 18 inches wide, the length varying with the capacity from 3 to 6 feet. Containers for holding fruit juices are either Monel metal, nickel, or glass lined steel which is not affected by fruit acids, alkalis, or chlorine solutions. Counter tops can be had in battleship linoleum, Monel metal or hardwood. A beverage pump operates from the top of the counter. Beverages can be cooled to 38 degrees in this machine.

### REFRIGERATED JARS

REALIZING the importance of developing retail cabinets in advance of offering frozen food products for promiscuous sale, George Bright, of Detroit, has been actively interested in the distribution problems of frozen foods. After accepting sponsorship of the January 9 Frozen Foods Meeting of the Detroit Section, American Society of Refrigerating Engineers, Mr. Bright busied himself getting manufacturers interested in rushing through demonstration cabinets for showing foods at the meeting held at Hotel Statler.

Several manufacturers co-operated with experimental cabinets, developed jointly by the Chicago Pneumatic Tool Company, American Thermos Bottle Company and the George B. Bright Company, were shown at the Bright Company laboratory at the time of the January meeting. A cabinet similarly developed in conjunction with the Whitehead Refrigeration Company was shown on the banquet floor loaded with frozen food. It consisted of two 15-gallon size thermos bottles mounted in a ply-wood cabi-

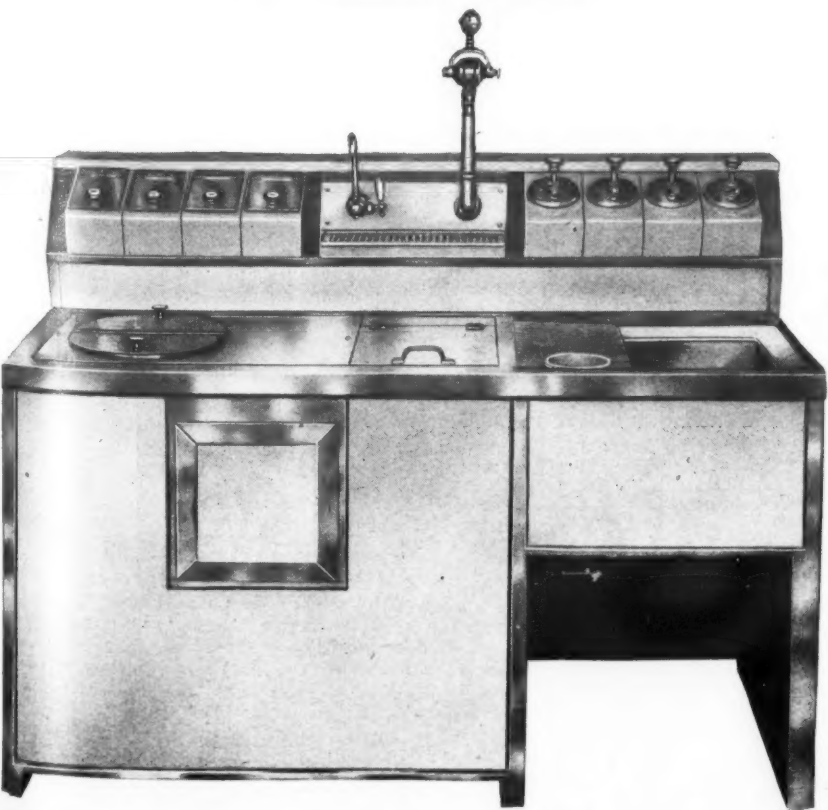
net, which also housed the Whitehead compressor unit. An inverted vacuum jar was incorporated in the top of the case and served as a display dome. The refrigeration of the storage jars and display dome present for the first time this unusual commercial application of vacuum insulation.

Both the Chicago Pneumatic Tool Co. and the Whitehead Refrigeration Co. have continued work on this type of display unit, after their original display cabinets had been returned to their respective laboratories for observation.

### EXPORTS

Washington, D. C.—The Department of Commerce reports that in the eleven months of 1929 ending November 30 the United States exported to foreign countries soda fountains and equipment (not including sirups or flavors) valued at \$586,676. In the corresponding eleven months of 1928 these exports were \$507,593. The largest buyers in 1929 were, in the order named: Canada, England, France, Brazil, Mexico, Cuba, Argentina, and Germany.

## New Fountain is Convenient For Small Stores



OF interest to ice cream retailer who has limited floor space is the new Jiffy Mac soda fountain now being manufactured by the Acorn Opalite Metal Specialties Co., Chicago, Ill. This compact fountain is available in 56" and 68" lengths.

The Jiffy Mac is designed for mechanical refrigeration and has compartments for two five-gallon ice cream cans and bottle storage. Top is Opalite glass, and front, back and ends are faced with porcelain enameled steel.

Three ice makers with capacities of eight pounds each can be had with either size of the Jiffy Mac.

# Day by day Leading manufacturers are cutting costs with **Dry-Zero!** **How?**

By making cabinets so fine  
and efficient that smaller,  
less expensive motors and  
machines provide improved  
refrigeration — reduce total  
manufacturing costs.

### THE ACTUAL FACTS

Tests have been made by impartial national authorities such as U. S. Bureau of Standards, Technical Institutes, State Universities, etc., to ascertain the insulating value and moisture absorption of commercial insulating materials. Here is a summary of the facts so established, of the materials named:

MATERIAL	INSULATING VALUE	MOISTURE ABSORPTION	(WT. IN LBS. PER CU. FT.)
DRY-ZERO	4.15 to 4.3	14	2
Corkboard	3.1 to 3.3	28	9.5 to 12
Wood fibre board	2.7 to 3.3	66 to 115	13 to 17
Flax fibre board			
Cane fibre board			
Mineral wool slab			

DRY-ZERO CORPORATION, 130 North Wells Street, Chicago, Illinois

# DRY-ZERO

THE MOST EFFICIENT COMMERCIAL INSULANT KNOWN



## REFRIGERATED FOOD SECTION ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

Published by

BUSINESS NEWS PUBLISHING CO.

550 Macabees Building, Woodward Avenue and Putnam Street  
Detroit, Michigan. Telephones: Columbia 4242-4243-4244

F. M. COCKRELL, Publisher

WILLIAM JABINE, Editor

FREDERICK W. BRACK, Advertising Mgr.

JOHN DRITTLER, Managing Editor

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Eastern Manager: H. A. DeLashmuth, 1950 Graybar Bldg., New York, N. Y.  
Phone Lexington 9113

Chicago Representative: F. W. Henkel, 306 S. Wabash Ave., Phone Wabash 6668

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Vol. 4, No. 16, Serial No. 92

April 9, 1930

### Ownership

THE ice cream cabinet occupies a peculiar place in the refrigeration business. The average ice cream cabinet is bought and owned by the manufacturer of ice cream, who places it in the retail store. Inasmuch as the manufacturer retains ownership of the cabinet, it is his job to see that it is kept in running order and the cabinet service department of the manufacturer of ice cream is an important factor in his organization.

There are two schools of thought in regard to this practice. One school contends that the ice cream makers started their present policy without realizing the full consequence of their actions, and would like to get out of the situation if they could do so gracefully. The advocates of this theory point to an expensive duplication of equipment in big stores which sell more than one brand of ice cream, to the fickle retailer who puts any old ice cream into anybody's cabinet when he can get away with it, and numerous other abuses.

The believers in the system minimize these abuses and point to the fact that the generous distribution of cabinets among merchants who could not or would not buy them has greatly increased the number of outlets. They contend that much of the remarkable growth of the ice cream business in the last few years has been the result of this policy.

So there you are—or, rather, there the producers of quick-frozen food are. Retailers who handle quick-frozen food will have to have proper equipment to handle them. Who will own this equipment, the producer or the retailer? The present opinion among producers of quick-frozen food seems to be that it should be the retailer's job to buy and own his equipment for storing and displaying the new products. Most of them seem quite certain on that point.

The ice cream men have the answer. They have been through the mill, and they should know. It might be worth while to ask them about it.

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### Versatility

REFRIGERATION is coming to the aid of the merchant who sells candy in those portions of the United States where intense heat has made the sale of candy a precarious venture. In fact, some retailers have been in the habit of discontinuing the sale of candy during the hottest months of the year.

The refrigerator filled with candy, which is shown on the first page of this Refrigerated Food section, was not designed for that purpose, but it is doing a good job, nevertheless. There seems no good reason, however, why an inexpensive and light refrigerated display case could not be designed for handling candy. Its construction would not involve any of the problems that are puzzling the builders of cases for quick-frozen foods, for extremely low temperatures would not be needed.

How big is the market? That is the question that probably will determine the matter. If it is big enough, it will not be long before such a case will be announced in the columns of the Refrigerated Food section of the NEWS.

### Refrigerated Food

THIS section of Electric Refrigeration News is available to dealers for distribution to their commercial prospects at a cost of \$10 per hundred—10 cents per copy.

Food retailers will welcome information on the new developments in food distribution. We suggest that dealers place copies of this section in meat markets, groceries, drug stores, ice cream and confectionery establishments, restaurants, hotels, etc.

### ENGINEERS

#### Must Solve Problems of Case Design

1128 Clay Avenue,  
New York City.

ELECTRIC REFRIGERATION NEWS,  
Detroit, Mich.

Your publication for March 26 carried more news of the noble experiment being conducted in Springfield, Mass., in the marketing of frozen foods in retail stores. It takes no fortune teller to predict a welcome volume of business for the electric refrigeration industry, if the retail sale of frozen foods is adopted throughout the United States.

It has been demonstrated beyond any doubt that the very best way now known for perfectly preserving food is the quick-freeze method employing temperatures twenty and more degrees Fahr. below zero. This being the case, it is up to experienced refrigerating engineers to produce the necessary special equipment as pointed out editorially in your publication January 15, page 12, and again March 12, page 10.

Since the March 26 number reflected opinions now held on this broad subject, the writer is prompted to utter a word of caution to those business men who are their own consulting engineers even in matters relating to refrigeration.

It is possible, though improbable, that some sharp frozen food can be held for a sufficient length of time in a well insulated and amply refrigerated display counter without approaching dangerously close to the thawing point. It seems that there are managers who are courageous enough to try this out now. A fair measure of success may be achieved in this respect in a northern state such as Massachusetts during the cool months of March and April. When tests are reported graphic charts should give a continuous record for a week of both the freezer case and store temperatures.

But this success will be less overwhelming in the humid summer months, because then the heat inflow into glass display counters will be so great that one would have to fill up the showcase with cooling coils trying to hold a temperature below 20 or 15 deg. F. while goods are being sold from it. If the food purveyors then find that the refrigeration industry seems unable to provide the facilities needed for satisfactorily handling frozen products, they will have to abandon the plan. Of course, some may expect to sell no frozen goods during warm weather, but many others will experience disappointment, and still others will condemn the whole scheme as being impractical.

Now, why run such risk of failure and jeopardize the possibility for rendering a valuable service to the public and to the refrigerating industry?

Now is the time to adopt correct methods of keeping frozen goods in retail stores! A glass showcase, as seen in every meat market, is not the proper device for preventing hard frozen goods from thawing. It is absurd; it cannot be done in this manner so as to be a success both technically and commercially.

Moreover, there is no sense in trying to actually display carefully wrapped, sealed and labeled packaged goods. Displaying the bare goods to the prospective retail purchaser is dangerous because light and heat are bound to contaminate

the frozen product, starting deterioration right then and there, and damaging the unsold packages as well.

Now is the time to point out to the food merchant that visual display and spreading out of wares before the eyes of the intending retail purchaser is not required in the handling of frozen goods if each article is properly wrapped and labeled. The variety of products for sale can just as well be shown by the display of dummies, colored illustrations, labels or containers conveying all information required. Should an exacting customer insist upon examining a package of frozen veal or pork chops, she can usually inspect the frozen contents through the transparent wrapper exposing one side of the article. But even this luxury should be discouraged as superfluous, it being sufficient for the customer to know that the contents of the package have been prepared by a reputable firm, inspected by responsible parties, and are guaranteed by the food merchant to be exactly as represented; also that one's money will be refunded if alleged unsatisfactory goods are returned to the store within a stipulated number of hours from sale. A time limit seems necessary in this case for the protection of the storekeeper, because if frozen articles are not handled as per instructions on wrapper, the vendor cannot be held responsible or accountable for ultimate deterioration of perishable products. It is obvious that the marketing of frozen foods will soon lead to a demand for low temperature refrigerators. In that case, the widely advertised 50° temperature will be found to be 30 deg. too warm.

The normal market display counter, with its extensive heat transmitting glass surface, should not be sold nor used for frozen goods. The refrigerating machine people are the ones who should come forward with appropriate construction. It should not be left to carpenters and fixture makers, because in this case it requires more than an insulated refrigerator. A common-sense brine-cooled device is needed, which facilitates marketing of frozen foods and which will keep the articles frozen hard indefinitely without the danger of periodical thawing, such as is necessary with exposed coils cooling air.

A suitable design is awaiting adoption. Hence it is not necessary to continue experimenting with "standard" equipment which was never intended for strictly low temperature service.

Respectfully yours,

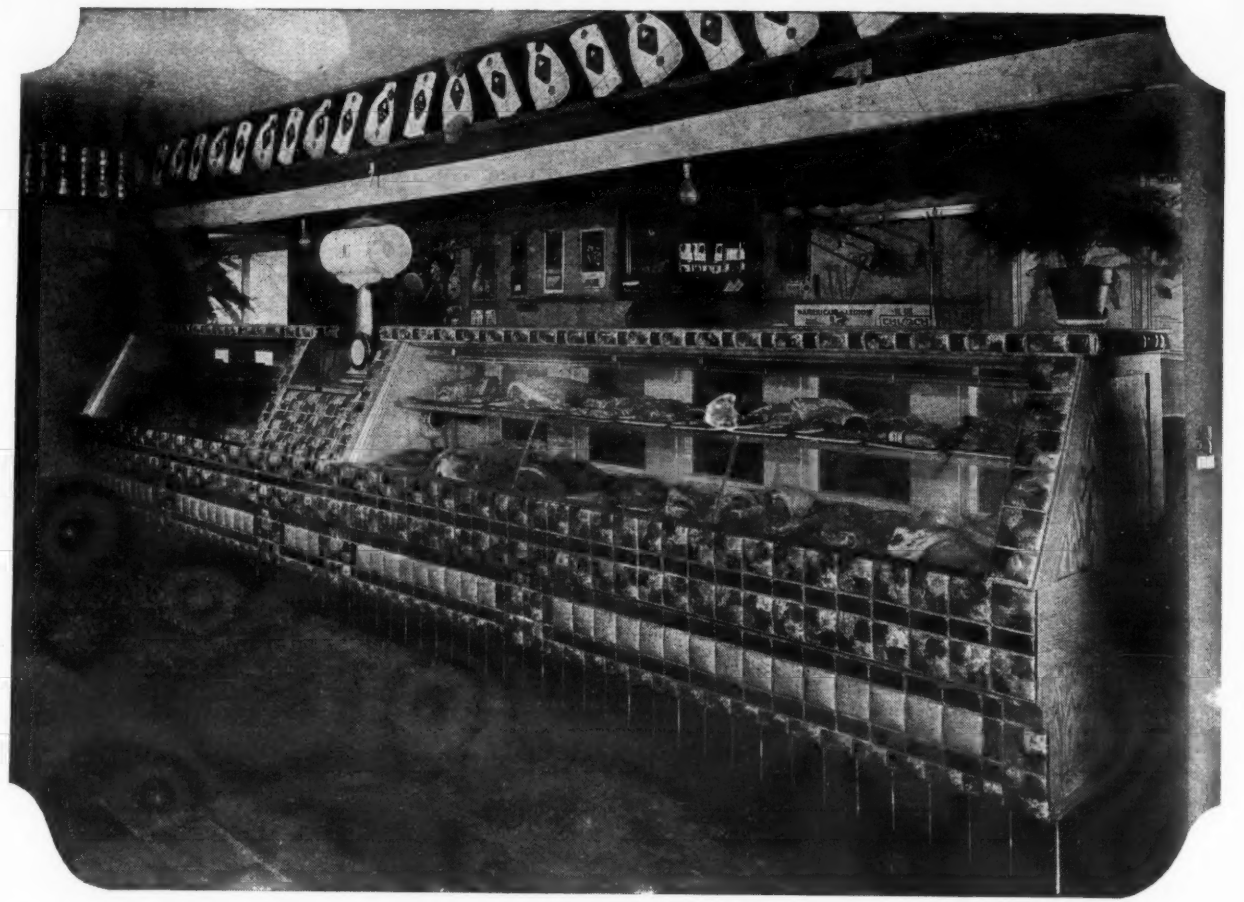
CHARLES H. HERTER.

### Next Issue

THE Home Service departments of the various refrigerator manufacturers are getting together every scrap of information in regard to quick-frozen foods. The women in charge of this work realize that the new products present new problems, and that the refrigerator in the home must do its part in keeping the quick-frozen foods.

In the next issue of ELECTRIC REFRIGERATION NEWS (April 23) the Home Service Director of one of the leading refrigerator manufacturers will present the latest news from the home service branch of the industry.

### Californian



Food products show up well in two Nu Way Cases which were installed in R. E. Stout's market in Tujunga, Calif.

### CONSTRUCTIVE

#### Research Shows Methods of Preparing Foods

Dayton, Ohio—With more and more emphasis on the food route to good health, Frigidaire Corporation, through its home economics department has been doing some very constructive research on foods improved through electric refrigeration.

Frigidaire, since its beginning, has stressed to its sales personnel the value of new recipes and other educational material on better food through electric refrigeration. Books containing recipes for salads, desserts and other dishes have been furnished Frigidaire prospects and users, and officials are convinced that it has been a most important factor in their sales.

Members of the Frigidaire home economics department are constantly producing new dishes and other cooking and household hints of value to Frigidaire users, and these are becoming broadcast through various methods. Some of the recent literature distributed contains a number of very attractive recipes.

"The Salad a Day idea," Frigidaire home economists say, "has passed the theoretical stage. It has definitely arrived. Countless housewives are seeking new variations of the salad theme. A head of cabbage has more possibilities than are apparent at first glance. Three highly palatable salads may be made with this healthful vegetable; the names of two of them—cole slaw and creamed slaw—are well known to most households.

"However, following is a new variation: Chinese Cabbage Salad—Cut amount of crisp cabbage desired for salad in small pieces. Place in mixing bowl and combine with sour cream dressing. This should stand for a few minutes before being served on individual salad plates.

"Ingredients of the sour cream dressing are: 2 teaspoons sugar, 1 teaspoon salt, ½ teaspoon mustard, ¼ teaspoon paprika, 1 egg, 1 cup sour cream and 3 tablespoons vinegar. Mix dry ingredients. Add egg, slightly beaten, sour cream and vinegar. Cook in top of double boiler until mixture thickens, stirring constantly. Remove from fire and cool to room temperature; then place in closed jar and keep in refrigerator."

### COOKING

DIRECTIONS which will aid the housewife accompany each package of Frosted Foods sold during the introductory campaign in Springfield, Mass. In addition to the directions with the package, the General Foods Corporation has been distributing a little booklet which says:

"Read the simple directions for handling which you will find on the outside of each package. You will note that the meat, fish and vegetables can be cooked just as they come from the package—no thawing necessary."

"Uniform in quality, scrupulously clean, ready for use—seasonal foods with their own fresh color and delicious flavor all year round. Think what convenience and incredible delight Birdseye Frosted Foods write into your menus!"



## COOLING

### Confectionery Presents Possibilities

By Frank W. Gray

CANDY manufacturers have for some time been interested in mechanical refrigeration as a means of preserving chocolate candy for retail distribution during the summer months. It is almost impossible to keep chocolates from turning gray under the heat conditions of unrefrigerated display counters during the summer. The fact that chocolates are so difficult to keep in good condition has led to a great slump in the sale of such perishable candies during the warm seasons of the year.

When kept in ordinary cases the surface of the chocolate melts slightly during the heat of the day, and then congeals in the cool of the night, causing the discoloration which is known as "gray chocolate." This deterioration is the source of considerable loss to candy dealers.

In factories the candy is preserved, both in the process of manufacture and in the storage rooms, by large cooling systems which keep a constant dry temperature of about fifty degrees. The retailer, having no such cooling facilities, must either take a chance on depreciation of his inventory, or must discontinue handling perishable stock during the summer.

It should be a simple matter to design refrigeration equipment for candy cases which would hold a fifty degree temperature automatically, and which would preserve the candy under all heat conditions. When the candy is sold it is packaged and wrapped in paper, which serves as insulation for some time. In case the customer intended to keep the candy for a considerable period, the dealer could advise him to place it in his refrigerator to insure perfect keeping, since it is the change of temperature which produces the discoloration.

To sell insulated counters to candy merchants would be uneconomical and really unnecessary. What is needed is a small, drip-proof cooling unit, which could be installed along the top, or back of any candy case. Several of such cooling units are now on the market, and the adaptation should not be difficult.

#### Refrigeration of Bakery Goods

Another field where moderately refrigerated counters are desirable is in the preservation of bakery goods, such as cakes, doughnuts, cookies, etc. Bakeries often suffer quite a depreciation of stock during a hot summer day, due to the melting of the sugar used in icing, and the drying out of cakes, cookies, etc. If bakery display counters were moderately refrigerated, at about the same temperature recommended for candy, the goods would be found to keep in much better condition.

A certain large department store in Seattle uses refrigerated pipes in all of its bakery goods counters. The attendants report that this refrigeration keeps the icings on the cakes and sugar coatings on the cookies and pies, etc., from melting into the pores of the pastries and making them soggy. Also there is practically no drying out process, and such products may be kept much longer under a certain degree of refrigeration.

The writer tried this experiment. Noting that sugared doughnuts become soggy and absorb the sugar on their surfaces after about twelve hours in the average cupboard, he placed a bag of sugared doughnuts in an electric refrigerator, and noticed that even after two days the sugar remained uncongealed on the surface and that the insides were firm and not in the least dried out. The same is true of all such pastries. Even the time-tried doughnut jar will not keep doughnuts or cookies in the same condition as when under electric refrigeration.

Heat is a consuming energy which attacks and breaks down the structures of most edible materials. Even the cooking process does not insure foods against heat deterioration. Both candy retailers and bakery goods retailers should welcome any installation of equipment which will prevent such deterioration.

Electric refrigeration dealers who sell and install commercial equipment will do well to scan the retail field of fruits and vegetables, candies, and also bakery goods as possible outlets for electrically refrigerated display cases.

## CENSUS

(Concluded from Page 4, Column 5)

easily determine whether he is getting his share of the business—whether he is holding his own, or gaining, or losing, as compared with his industry in general.

In addition, the preliminary reports will show the ratio between cost of materials and value of products, the output per wage earner, and the ratio of wages to value of output, thus enabling

the manufacturer to compare his own ratios with those for the industry as a whole. The census will answer the question whether the manufacturer is paying too much for his materials, and whether his output per wage earner is too small.

But if these preliminary reports are to be of maximum value, the manufacturers must co-operate with the Bureau of the Census by making their returns promptly and by taking care to answer correctly and completely all questions that apply to their operations. Heretofore it has been the practice of the Bureau to correct and complete defective returns through correspondence before issuing the preliminary reports. This necessarily resulted in delay amounting to four or five months in some cases, and therefore, in order to reduce the delay to a minimum, it is planned to compile the preliminary reports of this census from the returns as received, with little or no editing or verification of doubtful items except in the cases of the earliest returns. The final reports, however, will not be prepared until the defective returns have been corrected and verified.

In an effort to make the questionnaire easy for the manufacturers to fill out, the inquiry in regard to sales made during the year has been substituted in this census for the former inquiry calling for data on production during the year. Correct statistics on annual production are preferable to statistics on annual sales, but the Bureau realizes that many manufacturers have actually been reporting their sales and not their production, and it was decided, therefore, to ask what can be undoubtedly obtained from all manufacturers, rather than for what only a part of the manufacturers could and would report. In a few cases, however, the former inquiry calling for data on production has been retained at the specific request of the industries concerned.

During this Census of Manufactures, the Bureau plans to compile county and

city statistics which will be of somewhat greater value to local interests than those heretofore published. Separate compilations for the sixteen great groups of industries or for combinations of these groups of contiguous counties of less industrial importance. For cities having 100,000 inhabitants or more, the industries for which separate figures cannot be shown without disclosing the data for individual establishments will be presented in a number of combinations instead of in a single group.

## Broken Packages

THE reduction or complete elimination of the broken-package room offers large opportunities for saving, according to the study of warehouse and handling methods in various types of wholesale distribution of grocery products, recently completed by the Foodstuffs Division of the Bureau of Foreign and Domestic Commerce. The broken-package room costs from 0.6 to 1.4 per cent of sales to operate, in addition to the losses arising from deterioration and damage to goods in open stock, and from theft.

Two wholesale grocers, which number voluntary chains among their customers, have reduced their broken package rooms, which, less than two years ago, extended the length of their entire buildings and from one-third to one-half of the width, and employed many persons, to a space not over 10 x 15 feet and requiring less than half the time of one individual. It is claimed that increased volume has resulted, and that their customers are better pleased by receiving at all times clean and satisfactorily packed merchandise.—Domestic Commerce.

## New Kelvin Cooler Does Double Duty

FOLLOWING the recent announcement of the new Kelvin cooler by the Kelvinator Corporation, Detroit, orders have been coming for it in quantities, not for samples, but for dozens and gross lots.

The new Kelvin cooler has a dual use—is a water and beverage cooler, and also a vegetable crisper and refreshener. It may also be used for reviving cut flowers and bringing back their fresh life and beauty. The Kelvin cooler is easily removed, filled or cleaned. It is equipped with a chromium faucet for drawing the liquid.

The Kelvin cooler is made of pure

Armco iron, on which is fused three coats of porcelain. It is all white inside and out, except for a dark blue trim about the edge. It has a close fitting lid.

This new improvement by Kelvinator is meeting with very much response on the part of prospects. It is being used as a strong sales point. The Kelvin Cooler is designed so that it can be conveniently placed in the cabinet. It fits between the shelving and at a position near the door, the water can be drawn very easily.

Housewives will particularly appreciate this new development which Kelvinator has made.



The Kelvin cooler can be used for both water and beverage cooling. Vegetables can also be stored in it.

# These facts make Celotex-insulated refrigerators easier to sell

1. *Home-owners already know Celotex is successful insulation ...* The men and women from whom your sales come are thoroughly familiar with the name *Celotex*. They already know how it resists the passage of heat.

No technical data is needed to convince people that Celotex Refrigerator Insulation is efficient.

Whenever you talk Celotex, you promptly capitalize this nation-wide acceptance ... and turn it into sales.

2. *Insulating efficiency increased to the highest possible point ...* Celotex Refrigerator Insulation is a special kind of Celotex, fabricated by processes that increase its efficiency until it more than meets the rigid requirements of leading refrigerator manufacturers.

3. *No open joints or seams in this insulation ...* Celotex Refrigerator Insulation comes cut to fit exact specifications ... in boards of just the

right length, width and thickness. Each insulated area is covered with a single board so that open joints and seams are eliminated. And the insulation can never settle or sag with time.

4. *Clean, odorless and sanitary in every way ...* Celotex is made from the long, tough fibres of cane, carefully cleaned and sterilized. These fibres are entirely odorless ... thoroughly sanitary.

5. *The structural strength of Celotex makes stronger, more substantial cabinets ...* Celotex builds as well as insulates. Its great structural strength reinforces the walls and framework of the cabinet ... adds to the life of the refrigerator. Yet it is extremely light in weight.

## THE CELOTEX COMPANY

919 North Michigan Avenue

CHICAGO, ILLINOIS

In Canada: Alexander Murray & Co., Ltd., Montreal

Sales distributors throughout the world

Make this powerful selling point help you sell more refrigerators

Your customers are always interested in the insulation of your cabinets. You'll find their enthusiasm leads into a successful closing. Use Celotex Refrigerator Insulation in every sales talk.

The word

**CELOTEX**

(Reg. U. S. Pat. Off.)

the trademark of and indicates manufacture by

The Celotex Company, Chicago, Ill.

# CELOTEX

BRAND

## INSULATING CANE BOARD

## REFRIGERATOR INSULATION



# Properly Refrigerated Food is of Primary Importance in



CITIZENS of Mooseheart, Illinois, are great believers in the need for correct refrigeration of foods. Judging from the photo above, the large cafeteria operated by the girls in the vocational training school is very well patronized by them.

The 1,400 children who are trained and cared for by the Loyal Order of Moose are learning in their early stage of life the necessity for the refrigeration

of foods. Wherever the children go in this city, they see the factor that electric refrigeration is playing in their daily routine.

Frigidaire equipment furnishes the greater part of the refrigeration in Mooseheart. In the picture, one of the girls is obtaining food which has been stored in the Frigidaire. A short distance away one can see a water cooler. In the kitchen several refrigerators are

used for keeping the perishables.

The cafeteria is open to the public, and the girls are kept very busy catering to the demands of the customers. Just below a photo shows a group of young girls at work in the vocational training school. The training received at Mooseheart is quite extensive, and every ward of the fraternity after seeing the merits of electric refrigeration will no doubt become strong boosters for it.

## Frigidaire Protects the Health of Mooseheart's 1400 Children

MOOSEHEART is an institutional community in northern Illinois, owned and operated by the Loyal Order of Moose, for the care and training of some 1,400 children who live there as wards of the fraternity. It has its own dairy, restaurants, grocery store, candy shop and dormitory residences. Electric refrigeration is found in every one of these places.

Mooseheart is more than an institution; it really is a small city. It covers an area measuring one by three miles, and contains many miles of paved streets. It has its own public utility plant, with facilities for heat, light, water and power. It has its city parks, recreation centers, a United States post office, railroad station, fire department, police force, schools, hospital, churches, factories and schools. It includes a 100-acre farm and a large dairy. It has its own radio station and newspaper. There are in all 180 buildings in its three square miles.

Frigidaire equipment was selected by Mooseheart officials for furnishing the major part of refrigeration for the community, and today ninety per cent of refrigerating equipment in the community is Frigidaire. E. N. Roselle, superintendent, says that for three years preceding the installation of Frigidaire, ice costs were \$25,916.39. The Frigidaire equipment, which has been in service for more than three years, cost \$24,490.25. Mr. Roselle adds that approxi-

mate ten per cent more refrigeration is demanded by the community now than when ice was used.

"We have been keenly interested to observe that our operating costs in our power house have been actually less with complete electric refrigeration than it formerly was with cumbersome central ice manufacturing plant.

"There is simply no comparison between the types of service rendered. The inconvenience of icing the old boxes; inefficiency in preserving the food, and the frequent replacing of boxes made necessary by wood decay, due to moisture, all have been virtually eliminated. In fact, our worries and former problems on refrigeration have just about disappeared entirely.

"We have had an opportunity to test electric refrigeration in a variety of uses at Mooseheart. It is not only used in the 80 cottage homes in which our children live, but it is also used in several other community units. The hospital, for instance, uses Frigidaire not only for preserving food in its kitchens, but also in the laboratory for the keeping of certain medical supplies and serums at an even temperature. Our public cafeteria makes use of several units. The largest unit at Mooseheart is in our dairy, where we cool all of the milk, 1,400 quarts daily, as it comes from the pasteurizer and milk storage room. The convenience and safety of the ice cubes furnished by electric refrigeration is, in our opinion, one of its greatest advantages.

"It is probable that Mooseheart, with its 1,800 citizens, including children as well as employees, is the only town in the world completely equipped with electric refrigeration. The ice man and all that he connotes has been completely abolished from our little city, and we are happy in the fact that no ice is used here whatever, except that prepared by electric refrigeration from our own supply of water. Mooseheart is a growing city and we are now planning the erection of thirty homes as well as a modern new high school. This building program has been planned with great care and will be among the most complete to be found in this country. The buildings will, of course, be completely equipped throughout with electric refrigeration."

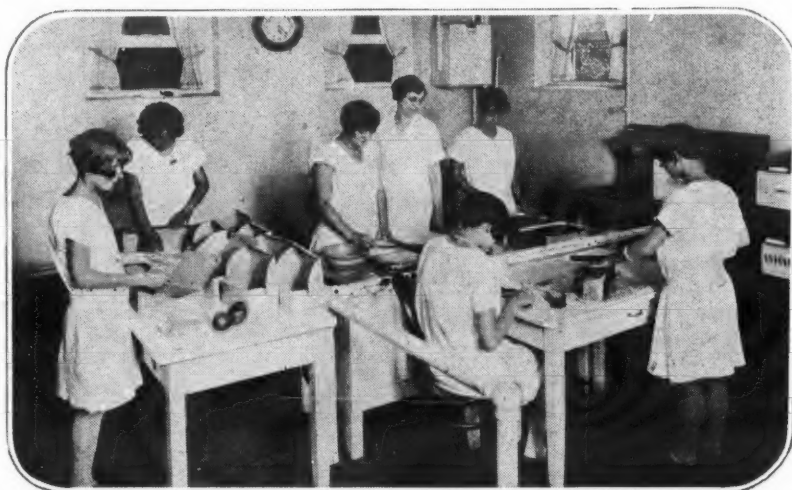
## OPERATING EXPENSES

MEAT markets were found in the Louisville food survey to have operating expenses of but 11.37 per cent of net sales, this being the lowest reported for any food outlet proper, only hay, grain, and feed stores among related products outlets being slightly less.

Operating expenses for the various types of retail outlets were found to represent the following percentages of net sales:

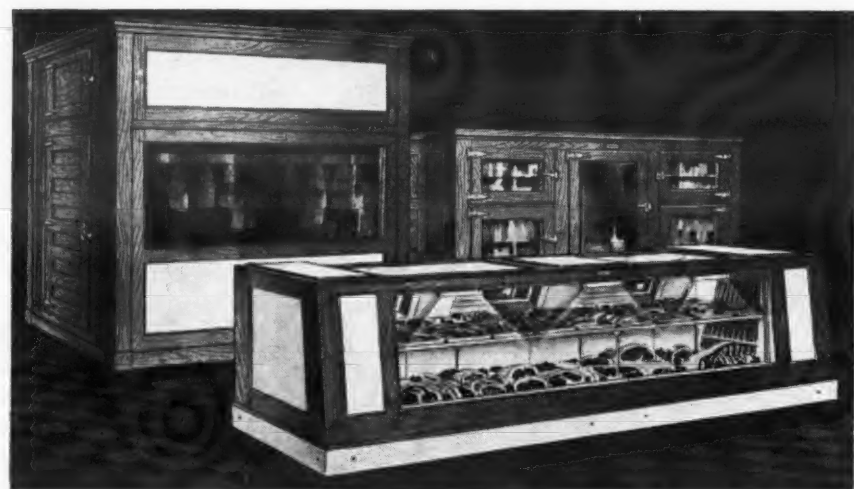
	Per Ct.
Hay, grain and feed stores.....	11.15
Meat markets .....	11.37
Grocery stores .....	12.34
Hucksters .....	13.35
Fresh fruit and vegetable stores..	19.70
General stores .....	19.76
Delicatessen stores .....	21.85
Drug stores .....	23.28
Fish markets .....	27.10
Dairies .....	28.42
Bakeries .....	33.20
Candy stores .....	33.66
Restaurants .....	40.66
Ice cream parlors.....	41.13

## Training Future Housewives



MODERN refrigeration equipment is being installed in school lunch rooms all over the country. Parents demand that their children shall be provided with food that is kept in the best possible condition, and refrigeration dealers are obtaining profitable orders as a result. Antiquated types of refrigeration are being replaced in many of the older structures, and every new school that is built requires some sort of up-to-date refrigeration equipment.

## Mooseheart Has Its Own Plant for Furnishing Power to the Community



## MAKE SURE you give 3 point refrigeration

In food store refrigeration low temperature alone will not give satisfactory results. Low temperature alone will not keep meats and delicate, perishable foods wholesome and saleable.

Adequate food store refrigeration is a combination of three (3) essential factors. They are—

1. Uniform Low Temperature
2. Controlled Humidity
3. Natural Air Circulation

Controlled humidity and natural air circulation are in-built qualities of Gruendler Refrigerators. They are engineered for mechanical refrigeration. You can recommend Gruendlers with confidence.

Gruendler Display Counters, Coolers, and Grocery Refrigerators have been standard equipment in the food industry for a quarter of a century. The Gruendler nameplate is a guarantee of master craftsmanship and high quality.

A few desirable territories open for aggressive salesmen.

The Master Refrigerator Builders

# GRUENDLER

REFRIGERATOR COMPANY

A Division of

ALLIED STORE  UTILITIES CO.

814-16 NORTH BROADWAY • SAINT LOUIS, MISSOURI



# Meeting Exacting Demands of Modern Institutional Work

## Kelvinators Have Important Job in New Evanston "Y" Building

THE refrigeration equipment installed in the new Y. M. C. A. building at Evanston, Ill., was sold by the Good Housekeeping Shop, Inc., Kelvinator distributor. The job was won in keen competition by W. C. James, sales manager, assisted by T. H. Maginnis, district manager.

The Kelvinator equipment in this Y. M. C. A. consists of the following:

(1) One No. 140 Type L. Halsey-Taylor water cooler, operated by a WR 40 Compressor. Filtered cooled water is circulated to 17 bubblers located throughout the building.

(2) One Type K123 Halsey-Taylor cooler operated by a WF 40 Compressor supplying water for the cafeteria.

(3) Three service boxes in different locations in the kitchen, cooled by three 16 V Cooling Units and one WR 40 Compressor.

(4) One service box in second floor kitchen cooled by a 16 V Unit and WF 20 Compressor.

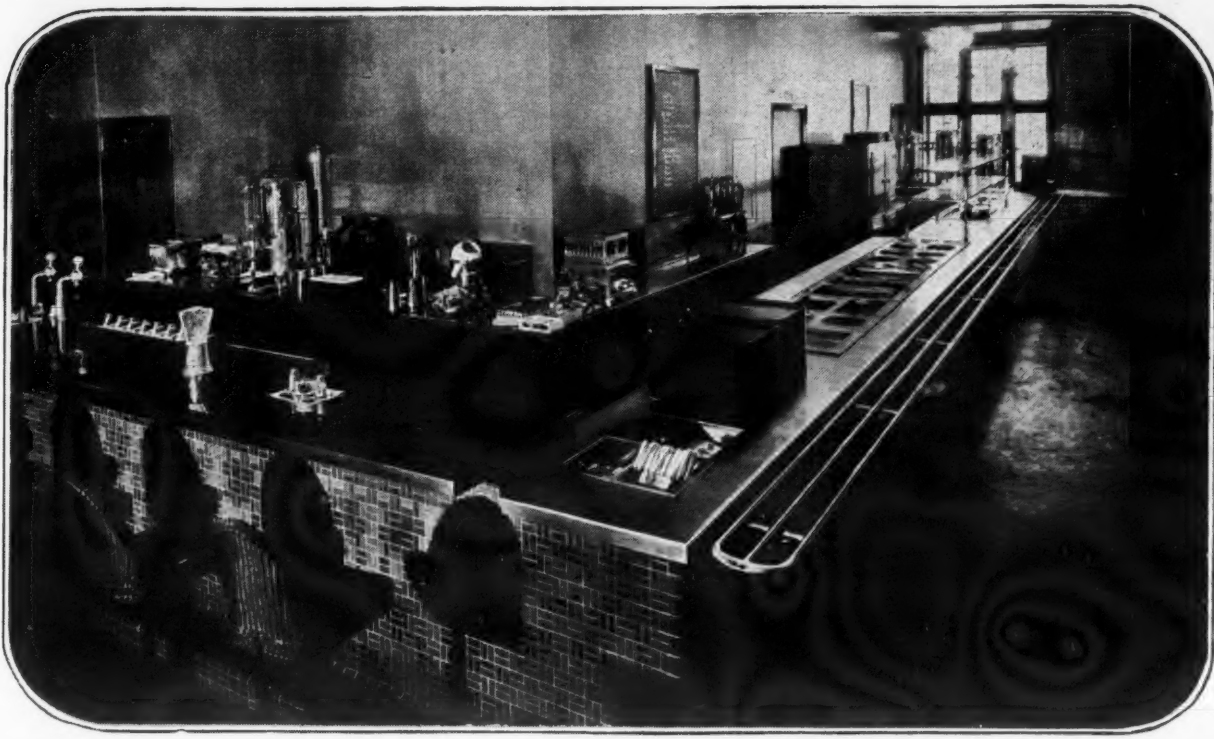
(5) Soda fountain—two 18 R Evaporators and one WF 20 Compressor.

(6) Salad Pan—one 34XD Cooling Unit and one WF 20 Compressor.

(7) One 3-Hole Ice Cream Cabinet and one WF 20 Compressor.

(8) Storage Refrigerator—3 walk-in compartments for meat, dairy and vegetable products. Refrigerated by four 42XD and two 48X Cross Fin Coils operated by one WR 40 Compressor.

All compressors are water cooled and are located in one room in the basement with the two water coolers. The view of the compressor room does not show four of the condensing units—one within the large water cooler in the foreground, and three behind the cooler along the left wall.



### RESPONSIBILITY

Bloomington, Ill. — Quick freezing methods, which holds forth the promise of making the entire range of foodstuffs available throughout the year to everyone, will put a new responsibility on every manufacturer of ice machines, according to C. U. Williams, maker of Ice-O-Matic refrigerating units.

"The new ways for maintaining meats, vegetables and fruits at their best up to the time they reach the home, will be for naught unless equal care can be maintained in the household," said Mr. Williams.

"Nutrition specialists urge that the diet for everyone, but particularly for children, should include many foods that are rich in vitamins. However, at least six independent vitamins are now recognized. Since each performs its own particular functions in promoting growth and bodily well being, it is necessary to keep foods containing them in the home, and to maintain them at their best. Otherwise, a diet might supply some, but not all of the necessary six, and with greatly lessened value to the individual."

"More than ever, then, since all these better protected foods soon will be available to the housewife, the manufacturer of ice machines must see to it that ample safeguards are supplied for keeping the foodstuffs as carefully in the home as they are kept before arriving there."

"Home refrigeration methods today often are an improvement over those practiced before the foods reach the mechanical refrigerator. In the day that is just around the corner, the home refrigeration methods will have to measure up to those that will be observed elsewhere."

### CASES FOR QUICK FROZEN FOODS INTEREST DEALERS

Minneapolis, Minn.—The W. S. Nott Company, distributors of Copeland electrical refrigerators in this territory, were hosts to 150 dealers from Minnesota, North and South Dakota and western Wisconsin, March 27-29.

A. Victor Nielson, manager of the re-

frigerator department of the W. S. Nott Company, was in charge. W. W. Sparbeck and M. R. Moore, of the Copeland factory, were the principal speakers. J. Greenspan, of the Warren Company of Atlanta, talked to the dealers on new freezer display cases which maintain low temperatures for frozen products. G. J. Shotwell, of the Victor Products Company of Hagerstown, Md., outlined in his talk the care of milk with electric refrigeration.

The dealers showed very much interest in the cases which the Warren Co. recently designed for storing and displaying the new quick-frozen products.

IN the spic and span cafeteria in the new Evanston Y. M. C. A. building, refrigeration is playing a big part in keeping the foods in good, wholesome condition. Patrons of the cafeteria have their foods safeguarded by Kelvinator equipment.

At the far end of the cafeteria a Kelvinator cabinet can be seen. Foods ready to be served to the customer are stored here so that they can be easily obtained at a moment's notice. This

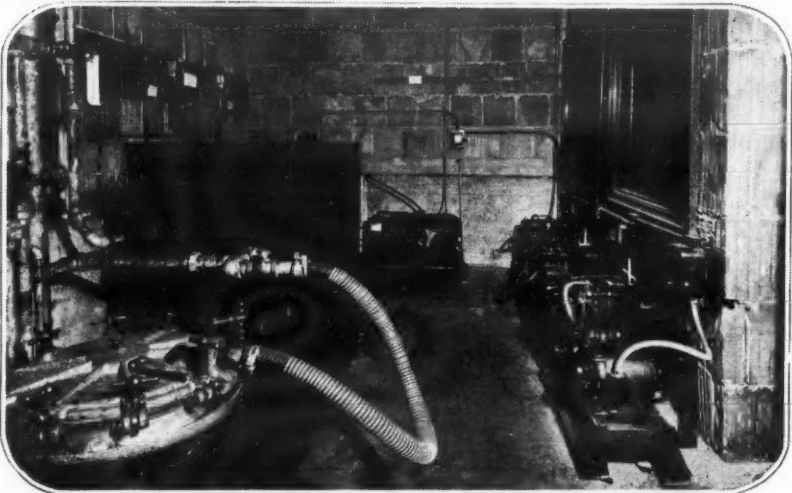
cabinet is the only noticeable sign of refrigeration, with the exception of the soda fountain, that can be seen in the cafeteria. Supplementing these two, there is a complete refrigeration system which cares for the needs in the kitchen and other parts of the building. Throughout the building there are a number of outlets where cool, refreshing water may be obtained.

The soda fountain and ice cream cabinet are refrigerated by the Kelvinator

equipment installed in the basement. The front of the soda fountain is of the most modern design, and its bright hue gives a bit of contrast to the room. Delicious ice creams and cold beverages can be had with all the meals in the cafeteria.

This installation shows that the idea of proper food preservation is spreading fast and institutions are on the alert in adopting the latest methods offered by the refrigeration industry.

### Kelvinators Doing Their Work



### London Experts Pleased

A CASE of quick-frozen meats, containing about fifty pounds of assorted cuts, was shipped recently to London by Alfred H. Benjamin, who has been identified with the meat trade for many years in South Africa, South America, Australia, New Zealand and the United States. The case was sent to some of the leading merchants in Smithfield Market,

the famous center of Britain's meat industry.

They opened up the case when it arrived and served the meats at their luncheon club. Reports received by Mr. Benjamin are to the effect that even the London experts were more than pleased with the quick-frozen cuts, which they relished with the greatest delight.

### New Y. M. C. A. Building Where Kelvinators Were Recently Installed



## EFFICIENT INSULATION



WHEN YOU get insulation efficiency, structural strength, odorless, moisture resisting, and non-deteriorating or non-molding qualities—then you are getting about what is expected and necessary from a good insulating material.

Insulite has a thermal conductivity of .27 to .30 B. T. U. per inch thickness per hour—that's efficiency for you.

In a recent laboratory test, four of the best known insulating boards were tested for strength, as shown in the above picture—and Insulite proved to be 14% stronger than any.

In other words, in refrigerator construction, the great tensile and bracing strength of Insulite reduces wood framing to a minimum—that's economy for you.

Another thing—Insulite is furnished cut to size—that reduces handling costs, speeds up production and eliminates expensive cutting, trimming, and wastes—further economies for you.

Insulite is made from the strong tough fibers of northern woods, chemically treated to resist moisture. That is why Insulite is odorless, and not subject to mold, rot, or deterioration.

There are lots more reasons—but if you are not now using Insulite, let us prove our statements. May we send you samples, our folder on modern cabinet construction, and any further facts you may want? Write today.

### THE INSULITE CO.

(A Backus-Brooks Industry)

1200 Builders Exchange, Dept. 30D  
Minneapolis, Minnesota

737 Conway Building  
Chicago, Illinois

OFFICES IN ALL PRINCIPAL CITIES

Insulate with

# INSULITE

the Wood-Fiber Insulating Board



## Small Machines Offer Flexibility in Ice Cream Plant Installations

By L. Kay Wright  
Mem. A.S.R.E. and N.A.P.R.E.

INSTALLATIONS of refrigerating machinery for small ice cream manufacturers offer an ideal field for automatic units, in that the low temperature demand requires constant compressor operation, if the freezers or hardening rooms are to be maintained within close limits. Automatic units, together with brine tanks, provide the best possible temperature maintenance.

The raw dairy products that enter the composition of the ice cream mix are best preserved in a refrigerator, or ante-room, at approximately 35° F. The ice cream mix is made up from the material held in the ante-room, and in large plants the mix is placed in a pasteurizer and the temperature raised and maintained at about 144° F. for thirty minutes. At the end of heating period the mix is passed to a homogenizer. By the time the mix enters the homogenizer its temperature has usually dropped to about 115° F.

The homogenizer is a vessel so constructed that the mix may be subjected to a pressure ranging from 3,000 to 3,500 pounds per square inch, and it is used to increase the viscosity of the mix. This is accomplished by reason of the high pressures breaking up the fat or cream globules, splitting them several hundred times, and also altering the condition of the casein to an extent that when the mix is passed over the cooler, the thickened product gives its heat up very slowly, as compared with milk cooling. The water section of the cooler reduces the temperature of the mix to about 80° F., and the brine section further reduces the temperature to about 45°, or even 40° F., if sufficient brine is available.

The treated mix is then placed in aging tanks, and maintained at a temperature of about 36° F. for a period of twenty-four hours or more. After aging the product is placed in freezers, and carefully watched.

### Ice Cream Freezing

The freezing process may be divided into four distinct portions or periods; the first being the period of bringing the temperature down to approximately 31° F., which is usually accomplished in about two minutes. The second period

is that beginning with the swelling of the mix at 31° F. and continuing until 28° F. is attained, which is the freezing point. This second period occupies from 6 to 8 minutes and is known as the "whipping" period, in which the mix is whipped to a smooth consistency.

The third period is the actual freezing, which, due to the previous removal of heat and reduction in temperature, is usually accomplished in about two minutes.

The last operation is that of drawing the whipped and frozen cream. If the cream is drawn too soon from the freezer it has a tendency to form icy splinters or spines, while if beating is continued too long the texture of the cream will be coarse.

### Small Plant Freezing

The small manufacturer stores his raw material in an ante-room, mixes his batches and runs them through the freezer. To him the process consists of two operations, the first being the freezing of the mix, which takes from 10 to 15 minutes per batch, reduces the temperature to about 28° F., swells the volume to about twice the original size, and thickens the consistency. The batches are removed from the freezer by pouring or draining into ice cream cans and placing either in a hardening room or a tank of brine, usually of 0° F., where the batch is allowed to freeze. The freezing period occupies about 24 hours, depending of course upon the cream and the temperatures maintained. The small manufacturer usually produces only enough ice cream for his own needs.

Various ice creams require different temperatures, but the difference is so slight that a mean is used so that all creams are kept in proper condition.

Vanilla ice cream begins to stiffen at 25° F., and at 9° or 10° F. it is hard and snowy. At 8° F. a thermometer penetrates with difficulty, and this is considered of sufficient hardness. Ice cream is usually served at a temperature of about 14° F., at which temperature it is of medium consistency, although it will retain its shape up to 22° F.

The gain in volume made in freezing ice cream, which is from 70 to 100%, is called the "over-run," and must be considered if a given amount of ice cream is required.

### Storage Methods

The choice between a hardening room and a tank, while largely determined by individual conditions and available space, is somewhat influenced by geographical location. Thus, in western installations the hardening room is the most popular, while in the east the tank predominates.

### Tank Storage

Whenever possible the hardening tank is completely assembled in the factory, so that all that is required is to place it in the desired location. The size of the entrance decides whether the tank must

be assembled on the premises or can be finished in the factory.

The ice cream storage tank, shown on this page, may be standardized by utilizing a two-can width construction. Where the storage tank would present too great a length it is best to make use of two cabinets. These cabinets may be separated by placing one along one wall and

## High Points

THIS article thoroughly discusses the application of automatic refrigerating units to small ice cream plant installations. It takes up a number of points which are of vital interest to the men in the field who are doing estimating and installation work.

The many phases of the work outlined here include:

1. Construction of ice cream hardening and storage cabinets, ice freezer cabinets and three sizes of hardening rooms.

2. Correct methods for the installation of the various types of equipment mentioned in the article.

3. Methods of estimating size of machines, collage, etc.

the other against the opposite wall. If desired, a runway of about 18" in width may be provided between the tanks, and also on either side. The runways or platforms are usually necessary, as the finished height of the cabinet is over 40", where the above ground installation is made. If the tank is sunken, leaving about 6" of the top above the floor, a very convenient installation results. Before the use of the sunken tank is advocated, make certain that the location is not subject to flooding.

Where use of the standard 20-quart ice cream can is contemplated, which has a 9 1/2" diameter, a brine tank of 29 1/2" width by 27 1/2" depth is used, the length depending upon the number of holes desired. Along the inside top of the brine tank, which is constructed of

No. 22 gauge galvanized sheet iron, an angle iron is used to strengthen the structure and provide a means for holding down the false cans. The angle iron is preferably of 1 1/4" x 1 1/4" galvanized stock, 1/2" thick, and is fastened so that the angle is turned in.

Two coils are used to refrigerate the cabinet, and both are of identical construction, to simplify coil fabrication and erection. The manner of joining the coils is effected in the tank so that only the inlet and outlet pipes project through the cabinet cover.

It may be found that the legs of the coil sides which adjoin each other may require movement, so that the coils may be properly set. The legs may be easily moved by first loosening the nuts and then tapping the leg with a hammer. It is important to make certain that the bottom edges of the coil legs are filed smooth, otherwise the sharp edges or ragged burrs may pierce the tank bottom.

A frame of 2" x 4" spruce is first made, and the 1" sides and bottom applied. The material used for the sides and bottom may be of the plain board type, but the tongue and groove stock is to be preferred in that any subsequent shrinkage will not cause openings between boards. Three skids or runners are applied to the bottom; these are best made of 1" x 6" oak.

The bottom of the cabinet frame is then lined with insulating paper, carrying the ends up the sides and lapping all edges at least 4 inches. A few small carpet tacks will hold the paper in place and prevent shifting. A layer of 2" sheet cork is then fitted into the bottom. The corkboard used throughout the building of the cabinet must be clean, sound, unbroken, and have square corners.

Another layer of corkboard is applied over the first course, taking care to "break" all joints; that is, to stagger the joints so that no two are in the same line. A lining of insulating paper is then applied, and a third layer of 2" corkboard is fitted into place.

The sides and ends are lined with paper, and two 2" layers of corkboard applied, the joints being staggered. Another layer of 2" sheet cork, applied over

ends projecting through and about 4" above the top. Edge strips of 1" x 4" hardwood, with the top outside edges rounded, may be used to trim and seal the cabinet edges.

If desired, the cabinet may also be constructed in sections, and assembled by means of studs. The solid structure is to be preferred to the sectional. At least two coats of good spar varnish should be used on the cabinet, to prevent the entrance and soaking up of moisture.

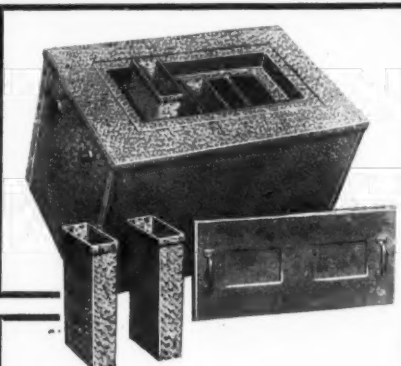
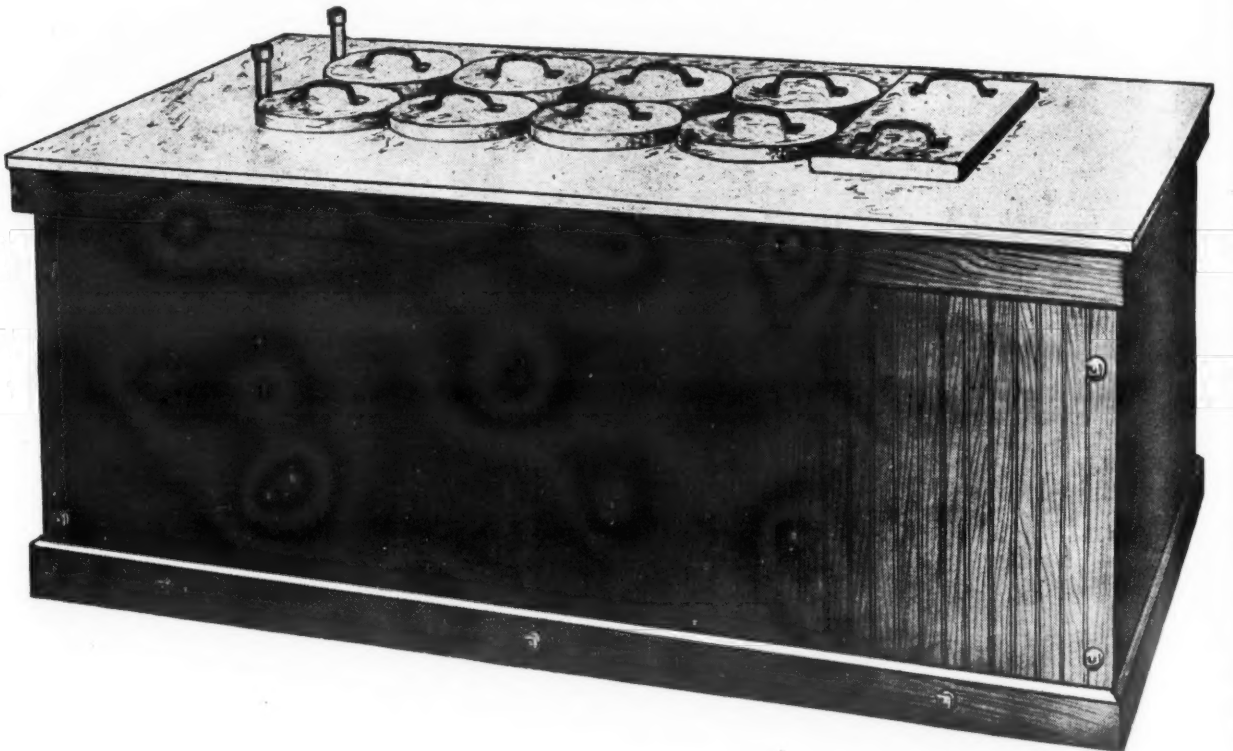
It is usual practice to equip the hardening cabinets with two or more holes for freezing ice. This is done by using an ice can of square end dimensions, such as 9 3/4" x 9 3/4" at the top and tapering to 8 3/4" x 8 3/4" at the bottom. The ice cans are best made of No. 22 gauge galvanized iron, 26" in depth, and provided with angle iron turned outwardly on two opposite sides. The angle iron ends prevent the cans from falling into the tank. By keeping the ice can clear of the bottom, faster freezing is secured.

The false cans for holding the ice cream cans are provided with a turned lip or edge, for securing the cans to the top plate. The cans are made of No. 22 gauge, but the top plate should be of No. 18 gauge galvanized iron. The edges of the false cans are turned out to provide a 3/4" flange. A tube for each can, of the same diameter but only 4" in height, is constructed of No. 22 gauge iron; both ends provided with flared edges. The tubes and false cans are centered over the holes in the metal plate and are riveted in place. Those tubes intended for ice cans must of course be of square or oblong form.

Brine is preferably made of 75% calcium chloride, and by using 3 pounds per gallon of brine a specific gravity of approximately 1.200 at 68° F. may be had, having a freezing point of about -13° F. The brine is mixed in metal barrels, allowed to cool overnight, and is then poured or pumped into the tank through the ice can holes. The ice can holes provide a means of observing the brine level.

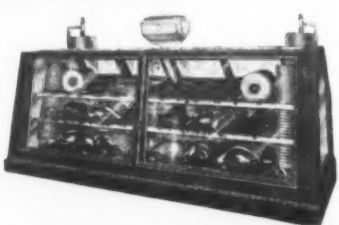
The tank must be set up absolutely level, so that the brine can be carried to within 1 1/2" of the top. If the tank is not level, brine is liable to run over

## Eight Can Ice Cream Storage Tank



## Supremely Practical THESCO Units

Pictured above is a THESCO No. 4000 Can Ice Unit, adaptable to all forms of mechanical and electrical refrigeration.



Immediately above, the THESCO Refrigerator Display Counter No. 900. Provides a full-length display. Enables a quicker service, with less back strain.

Write for literature which explains in complete detail the many time and labor-saving features of these two outstanding THESCO Units.

### Some Territory Still Open—

Distributors: Write for complete proposition, discounts, and profitably illustrated catalogs. Catalog 94 describes 70 styles of Refrigerator Display Counters, and other refrigeration and store equipment. Catalog 85 shows 106 items of interest to Hotels, Hospitals and Institutions.



The C. Schmidt Co.  
John and Livingston Ave.  
CINCINNATI, OHIO

## AETNA "RUBBERWARE"

### ICE CREAM CABINET REPLACEMENT PARTS

CABINET TOP HOLE SECTIONS  
SEMI-HARD HOLE SLEEVES  
LID COLLARS  
FLEXIBLE HOLE SLEEVES  
LID KNOBS  
BRINE HOLE STOPPERS

Special Parts to Customers Design to Order

WRITE FOR LITERATURE AND PRICES

THE AETNA RUBBER COMPANY  
ASHTABULA OHIO

a lining of insulating paper, completes the required 6" thickness.

The second and third layers of corkboard may be pinned into place by the use of hardwood skewers, such as those used by butchers for shaping roasts; the skewers being used in lieu of metallic nails. The hardwood pins must be driven in at an angle to hold the cork.

The brine tank, first being tested with water and proved tight, is forced into place by laying boards in the bottom of the tank and pressing it firmly and evenly into position. The coils are then lifted in and the false can assembly temporarily placed in position to make certain that the coils are properly placed. The false can assembly is then removed and the coils are connected. The false can assembly is then replaced, and an electric drill is used to pierce a hole through the false can top plate and through the angle iron of the brine tank. A hole is drilled about every 5", as there is great buoyancy to contend with in holding the cans in place. A screw of the hardened type, which cuts its own threads, requires no nut to hold it in place, and is vibration proof, is forced into each hole as soon as it is drilled.

The top insulation, consisting of two 2" layers of sheet cork, is fitted over the false can plate and around the false can sleeves. Before applying the 1" wooden tank top, a sheet of insulating paper is tacked in place. The wooden tank top is then applied and fastened securely in place, with the two coil

the tank edge and ruin the insulation.

The covers for the individual false cans are made of Balsa wood, cut or turned to size, and secured to a hardwood disc or cover plate. The Balsa wood should be boiled in paraffin before assembly to prevent subsequent water-logging. A disc of sheet metal may be applied to the bottom of the Balsa wood insulation to protect it from moisture and abrasion. Where desired the cover over the ice cans may be made to cover more than one can.

### Ice Freezing Cabinets

Since most confectioners prefer to freeze their own ice, an ice-making cabinet is sometimes installed in conjunction with the hardening cabinet. The major portion of the ice cabinet is identical with the ice cream hardening cabinet. The only change required is to furnish square or oblong holes in the top plate. Such an ice tank is preferably fitted with one or two covers, instead of individual can covers, as shown on the opposite page. If desired, one large cover may be used to cover the cans; it being best provided with hinges so that it is merely raised instead of being entirely removed. Where large covers are used it is best to construct them of timber and cork. A four-inch cork insulation is the best thickness.

In providing ice cans it is important to take into consideration the time required for freezing, remembering that the time of freezing is proportional to the make use of ice cans of 4" thickness.

(Continued on Opposite Page)



the square of the thickness of the ice. The following formula will give the approximate freezing time in hours:

$$7 \times T^2$$

T, being the thickness of the ice in inches, squared.  
F, being the number of degrees F. below freezing point (32° F.) of the cooling brine.  
Thus, for example, if ice is required within short periods it would be best

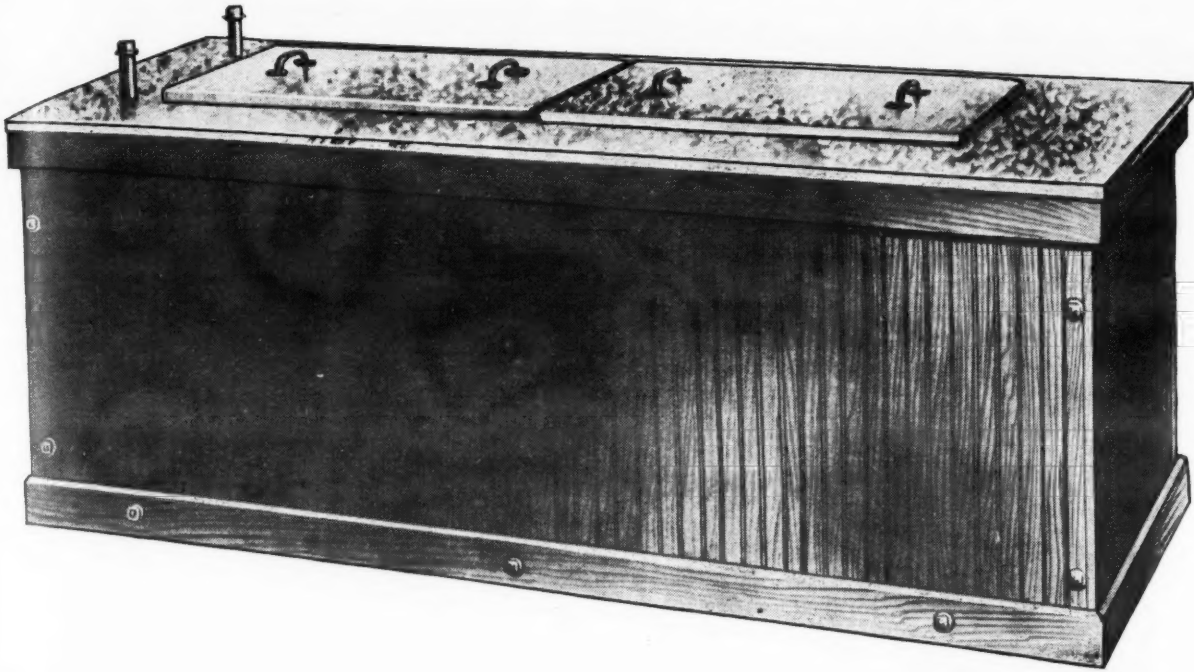
top of the brine tank cover to catch the drip from the ante room coil.

The hardening room, 5'0" x 5'0" x 5'8" high, inside dimensions, is equipped with pipe stands, which support the flat coils which act as shelves. A bank of five coils is placed near the ceiling, while two shelf coils are spaced off for the accommodation of cream cans. These shelf coils, of which there are seven in all, are of 1 1/4" pipe, 4'6" long x 8 pipes wide, containing 40 feet of pipe each, or in all, 280 lineal feet of pipe, are

lineal feet. The cold storage doors used in this design are of standard 2'0" x 6'0" size.

The ante room walls are made up of two 2" layers of sheet cork, set in cement, and a cement finish applied to the surface. The walls finish about 5" thick. The hardening room is insulated with two 3" layers of sheet cork, the walls finishing about 7" overall. A concrete wearing floor of 2" thickness should be provided in both ante and hardening rooms.

### Ice Freezing Cabinet is of Similar Construction



rather than 9", for with brine at 0° F., the former thickness would be frozen solidly within four hours, whereas the latter thickness would require 18 hours. If the ice is to be cut up into cubes or cracked, the thickness is of no importance so long as the weight of ice is provided.

Before fabricating the coils for a hardening cabinet from which the brine is to be used for circulating through the ice cream freezing machine, it is best to check up on the number of lineal feet required and the gallonage of available brine. By leaving a 3" clearance between the false cans and a 4" space at each end it will be found sufficient in most cases.

With hardening rooms more or less space is always available for additional storage, while the hardening tank, limited to a specific number of false cans wherein the ice cream cans are accommodated, provides no additional or emergency space. During a prolonged warm spell, when the consumption of ice cream is at its peak, the hardening room can be crowded with cans, yet room may always be found for several more.

There is one feature in favor of the hardening tank; that is, in order to place or remove a can of cream a person does not have to enter a frigid chamber, as with the hardening room.

#### Hardening Rooms

Since most of the smaller installations of ice cream plants are made to rather definite requirements and output, the construction, layout and design is best simplified so that a standard may be adopted. To fulfill most requirements three hardening room installations were selected, each of different capacity, so that a standard recommendation could be made for any small plant.

The smallest of the three standard installations has the following specifications:

#### Standard Hardening and Cooling Installation

To make 60 gallons of ice cream daily and to harden and store 200 gallons. The ante room, 5'4" x 5'4" x 6'0" high, inside dimensions, is used for the storage of milk, cream and syrups. It is refrigerated by a coil of 1 1/4" pipe, 4'6" long x 5 pipes high x 3 pipes wide, containing 72 lineal feet of pipe. This coil is mounted on top of the brine tank, to the rear, leaving a space in the front so that the brine tank may be opened for inspection. A space of 5" is left at each end of the coil so that an accumulation of frost will not build up and affect the walls.

The brine tank contains the solution required for circulation through the ice cream freezer, the pump being installed outside of the cold storage room. The tank is constructed of No. 18 gauge galvanized iron, 5'2" long x 2'0" wide x 4'0" high, with 1" angle iron at the edges and in the center of the 5'0" walls to stiffen the structure. The brine tank is set up in cement so that the bottom, back and two ends are tight against the milk room walls, while the side exposed to the room is insulated with 2" of corkboard and an insulated tank cover with a hatch or removable plug, which is provided for the top for inspection purposes. The tank requires about 1,000 pounds of calcium chloride for the brine solution.

The brine tank coil is of 1 1/4" pipe, of oval construction, 4'6" long x 12" wide x 25 turns, and contains 250 lineal feet of pipe. A drip pan is installed on

installed with a 3" clearance at each end. The cold storage doors are of the regulation type, 2'0" x 5'6" high.

The ante room walls are of 4" thickness, being composed of two layers of 2" sheet cork, set in cement, and a cement finish applied to the surfaces, the wall finishing about 5" thick. The hardening room has 6" cork walls, being composed of two 3" layers, set in cement; the completed wall, including finished cement surface, results in about a 7" total wall thickness.

Approximately 1,200 board feet of 3" and 920 board feet of 2" sheet cork is required for the construction of the two chambers, besides the usual skeleton of 2" x 4" timber.

A concrete wearing floor of 2" thickness should be provided in both the ante and hardening rooms.

This is a popular sized plant for small ice cream establishments, who desire to manufacture their own product and dispose of it to a retail trade. The overall height of the completed cold storage rooms is such that it can be installed in almost any basement, and being of very compact form utilizes but little space. It is best placed so that one of the long walls and one of the short walls are abutted against the basement foundation or walls. This usually results in an added insulation value and is somewhat easier to erect and finish. The finish requires that only two walls be completed on the exterior side and results in a small saving in labor.

#### Medium Size Standard Hardening and Cooling Installation

To make 100 gallons of ice cream daily and to harden and store 300 gallons.

The ante room, 5'7" x 6'2" x 6'6" high, inside dimensions, is used for milk and syrup storage. A coil of 1 1/4" pipe, 5'0" long x 5 pipes high x 3 pipes wide, containing 80 lineal feet of pipe, is used to refrigerate the ante room. This coil is mounted on top of the brine tank, to the rear, leaving a space at the front wherein a hatch or plug is located so that it may be opened for inspection. A space of 3" is left at each end of the coil and a space of about 5" should be left at the rear, to prevent the accumulation of frost. This coil is mounted upon a drip pan to catch the drippage.

The brine tank, holding the brine used for circulation through the ice cream freezer, is constructed of No. 18 gauge galvanized iron, 5'6" long x 2'6" wide x 4'0" high, provided with 1" angle iron at the top edges and in the center of the 5'6" walls to strengthen the structure and prevent bulging. The brine tank is set up in the ante room with cement so that the bottom, both ends and one long side is tight and flush with the ante room surfaces. The side exposed to the ante room is insulated with 2" sheet cork, while the top is provided with an insulated cover, pierced with a hatch or plug to admit inspection of the brine. The tank requires about 1,200 pounds of calcium chloride for the brine solution.

The brine tank coil is constructed of 1 1/4" pipe, 5'0" long by 12" wide. It is of the oval type, with 27 turns, and contains about 300 lineal feet of pipe.

The hardening room, 5'7" x 5'10" x 6'2" high, inside dimensions, is provided with pipe stands which support the flat shelf coils. There are six shelf coils, of 1 1/4" pipe, 5'0" long x 10 pipes wide, each coil containing about 53 lineal feet of pipe. With connections between coils the total pipe amounts to about 325

Like the preceding installation this plant can be installed in almost any basement, the overall height being only 7'0". Sometimes, in order to get space, the insulation and floor level are sunken below the existing basement floor. Where this is done it is important to use a waterproof cement on the cork floor.

Approximately 1,300 board feet of 3" and 1,000 board feet of 2" sheet cork is required for the rooms, besides a number of 2" x 4" timbers to provide the skeleton or frame.

#### Large Size Standard Hardening and Cooling Installation

To make 200 gallons of ice cream daily and to harden and store 500 gallons.

The ante room, 3'6" x 6'2" x 6'6" high, inside dimensions, is insulated with 4" sheet cork, applied in 2" layers, laid in cement and finished with a smooth cement coat. The room is refrigerated with a flat coil of 1 1/4" pipe, 5'6" long x 14 pipes high, containing 80 lineal feet of pipe. The coil is about 4'0" in height and is mounted against the wall on 2" x 4" timbers, or else on strap iron hangers.

The hardening room, 8'6" x 5'10" x 3'2" high, inside dimensions, is insulated with 6" cork, applied in 3" sheets, laid and finished with cement so that the total wall thickness finishes about 7". Six shelf coils, used to refrigerate the room, contain a total of about 518 lineal feet of pipe. The individual coils are 8'0" long x 10 pipes wide, constructed of 1 1/4" pipe.

Standard sized refrigerator doors are used in the installation, although other doors may be used. The size advocated is the 2'0" x 6'0" size.

The brine tank, externally located in this installation, is of No. 18 gauge galvanized iron, 6'0" x 3'0" wide x 4'0" high, reinforced with 1" angle iron at the top and center of the long sides.

The tank requires about 1,600 pounds of calcium chloride for brine, and for cooling the brine two oval coils of 1 1/4" pipe are used, each being 5'6" long x 1'0" wide x 18 turns high. The total lineal feet contained in both coils is about 450 feet.

The brine tank is insulated with a

layer of three- and two-inch corkboard, 5" of sheet cork in all, laid and finished with cement. The resulting wall is approximately 6" in thickness. The amount of corkboard required is about 1,600 board feet of 3", and 1,000 board feet of 2" thickness.

Like the preceding installations, this design utilizes a minimum of height, as therefore can usually be accommodated in almost any location.

#### Hardening and Ante-Room Leakage

The hardening room and ante room walls are continuously leaking heat in spite of the heavy insulation in the walls. Where installations are made by constructing the rooms on the premises, sheet cork is usually employed, while if the rooms be of the sectional type, that is, constructed of timber and filled or lined with cork, sometimes ground or loose insulation is utilized. It will be assumed, however, that the walls of the hardening room be of such nature that a leakage factor of 2.5 B. t. u. per 24 hour per square foot of surface per degree temperature difference may be employed. With the ante room walls such construction that will only permit a leakage factor of 3.0 is contemplated. These factors are met with 8" granulated cork walls for the hardening room walls, and 6" granulated cork for the ante room.

#### Machine Capacity

Before estimating other portions of the equipment, the machine size re-

quired to freeze and harden the cream should be determined.

Where certain creams are to be frozen exclusively, the table may be used in calculations. Where a general run of cream is to be estimated, it is best to assume a reduction in temperature from 70° to 9° F., and to estimate that 1,002 B. t. u. are required to freeze and harden each gallon of mix.

Based upon a twelve-hour running period and the use of a 5-pound gauge back pressure. For example: to freeze and harden 100 gallons of finished

cream, which requires but 60 gallons of the raw mix, there would be involved:

60 x 1000 or 60,120 B. t. u.  
In estimating the machine capacity required, rated in B. t. u. per hour of running time, the running time in hours being assumed as twelve per day, to freeze and harden 100 gallons of finished cream, or 60 gallons of the raw mix, would require:  
M x 1002 60,120  
or ————— = 5,010 B. t. u. per hr.

12 12  
The B. t. u. per hour of running time to freeze and harden any quantity of raw mix may be estimated by the formula:

83.5 x M  
The B. t. u. per hour of running time to freeze and harden any quantity of finished cream may be determined by employing the formula:

50 x G  
Example  
Assuming that 100 gallons of finished cream was required (or 60 gallons of the raw mix) there would be involved:  
Where G = 100 or  
M = 60  
50 x 100 = 5000  
83.5 x 60 = 5010

the results being the number of B. t. u. required per hour for a twelve-hour operating period to properly freeze and harden the cream.

#### Mean Specific Heat

Total Heat per Pound and Pounds per Gallon of Mix

	Vanilla	Peach	Chocolate	Strawberry	Orange
Mean Specific Heat of Liquid Ice					
Cream 40° to 70° F.....	.76	.80	.79	.77	.70
B. t. u. per Gal. of Mix from 70° F. to Soft State.....	710	630	796	764	862
B. t. u. per Gal. of Mix from Soft to Hard State.....	292	308	166	266	598
Total B. t. u. per Gal. from 70° to 9° F. (Hard).....	1002	938	962	1030	1460
Weight in lb. per Gal. of Mix at 75° F. (231 cu. in.).....	9.123	9.024	9.082	9.116	9.808

quired to freeze and harden the cream should be determined.

Where certain creams are to be frozen exclusively, the table may be used in calculations. Where a general run of cream is to be estimated, it is best to assume a reduction in temperature from 70° to 9° F., and to estimate that 1,002 B. t. u. are required to freeze and harden each gallon of mix.

#### Machine Capacity, to Freeze and Harden

Based upon a twelve-hour running period and the use of a 5-pound gauge back pressure. For example: to freeze and harden 100 gallons of finished

#### Hardening Room and Ante-Room Leakage

Based on the use of 8" of granulated cork in the hardening rooms walls, and 6" walls in the ante room, the following formulas may be used to calculate heat leakage:

Sh = sq. ft. of the outside surface of the hardening room.

Sa = sq. ft. of the outside surface of the ante room.

Kh = 2.5 B. t. u. per 24 hr. per sq. ft. per degree difference. This is leakage factor for 8" walls of granulated cork.

(Concluded on Page 14)

**It increased one User's Sales 300%**

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## ICE CREAM PLANTS

(Concluded from Page 13)

$Ka = 3.0$  B. t. u. per 24 hr. per sq. ft. per degree difference, used as a factor for 6" walls of granulated cork.  
 $Th = 80$  = Temperature difference between hardening room at 0° F. and the outside air at 80° F.  
 $Ta = 45$  = Temperature difference between ante room at 35° and the outside air at 80° F.  
 $1.33$  = Usage factor, due to heat entering opened doors. (U)  
 $12$  = Running time in hr. per day. (R).  
 $B. t. u. per hr. run = [(ShxKxTh) + (SaxKxTa)] 1.33 =$   
 $[(Shx2.5x80) + (Sax3x45)] 1.33 =$   
 $12$   
 $22.2 Sh - 15 Sa$

### Example

Where hardening room and ante room leakage, together with the total machine capacity is required.

Hardening room = 8' x 8' x 8' outside and ante room 10' x 8' x 8' outside.

Sh will therefore = 320 sq. ft. of surface, and

Sa will have 384 sq. ft. of surface. The common wall area is deducted in both cases.

B. t. u. per hr. run =  $(22.2 \times 320) + (15 \times 384) = (7100 + 5760) = 12860$  B. t. u. per hr. run.

Assuming the freezing and hardening of 100 gal. = 5010 per hr., adding heat leakage of freezing duties = total = 17,870 per hr.

It must be remembered in ice cream work that in order to maintain the low temperature necessary, that the capacity of the refrigerating machine is reduced due to lowering suction pressure. Under normal conditions machine capacity is rated at 75%, that is, a two-ton plant (24,000) will be good for but 18,000 B. t. u. per hr.

The plant required for the above example, the load being 17,870 B. t. u. per hr. of running time, would be of the two-ton size. These figures refer to a 12 hr. running basis, and if it is desired to run but half that time (6 hours), a four-ton plant will be required.

On a larger plant operating 24 hours per day on a back pressure of 20 pounds gauge and 175 pounds head pressure, it is usually assumed that each ton of capacity will freeze and harden 100 gallons of ice cream. It is said that this proportion holds good for plants up to 4,000 gallons production per day. The power factor involved usually ranges from 1½ to 2 times the tonnage.

### Machine Capacity

(Based on 12 hour running time and the use of 5 pounds back pressure) is predicated on the gallons of finished cream per day and the hardening and ante room leakage.

$50 G + 22.2 Sh + 15 Sa =$   
 Total capacity in B. t. u. per hour of running time.

### Coils for the Hardening Room

Lh = Lineal ft. of 1" Ex. Hy. pipe (3 lin. ft. = 1 sq. ft. surface).

2.5 = Heat transfer factor in B. t. u. per hr. per sq. ft. of coil surface per degree difference.

Tc = 20° temperature difference between hardening room 0° F. and ammonia -20° F. in the coils.

$Lh = \frac{2.5 \times Tc \times B. t. u. per hr. run}{3} =$   
 $.06 \times B. t. u. per hr. run.$

### Example

In previous example hardening room leakage load was 7100 B. t. u. per hr.

The load for hardening cream =  $12$   
 $= B. t. u. per hr. run = 1460.$

$Lh = .06 (7100 + 1460) = 513.5$  ft. of 1" Ex. Hy. Pipe.

### Hardening Room Collage

Based on hardening room leakage and hardening of cream data.

$Lh = .06 (22.2 Sh + 14.6 G) = 1.33$   
 $Sh + .875 G = 1"$  pipe required.

4 Sh  
 3  
 = 1" Pipe  
 (Sh + Hardening Cream)

11  
 14  
 = 1½" Pipe

Hardening Room  
 B. t. u. per hr. running time =  $S \times K \times Td \times U$   
 $R = 22.2 \times S$   
 $S =$  Outside surface, sq. ft.

1" Pipe  
 Freezing Cream + Room Leakage = 39

1½" Pipe  
 Freezing Cream + Room Leakage = 49

Lb. = .03 x (5760 + 3550) 279 ft. of 1" Ex. Hy. Pipe

Where the ante room leakage and freezing load is given:

$Lb = .03 (15 Sa + 35.5 G) = .45$   
 $Sa + 1.065 G = 1"$  pipe required.

Brine Tank Coil in Ante Room  
 Freezing Cream + Room Leakage = 39

1" Pipe  
 Freezing Cream + Room Leakage = 49

1½" Pipe  
 Freezing Cream + Room Leakage = 49

Size of Brine Tank Needed  
 The circulation of brine through the freezer reduces the cream to the soft

making cans are usually required. Therefore, most ice cream storage tanks are usually equipped with both square ice cream cans and ice making containers, besides the required number of false cans used to house the ice cream containers.

Most manufacturers standardize the ice cream hardening cabinet and the small ice making unit, and make the tank and insulating body interchangeable.

The ice cream cabinet shown on a previous page accommodates eight ice cream cans, or, as it is termed, a double row of four, and provision is made for the freezing of ice at one end, the ice cans being covered by a single lid.

By studying the illustration depicting the ice making cabinet, it will be apparent that the only difference between it and the ice cream cabinet is in the top.

ual cans are removed and placed in the serving or store cabinets for consumption. Due to the fact that the thickness of insulation must be cut down to a minimum, the serving cabinet is usually poorly insulated.

Some cabinets are brine cooled by the use of a small circulating pump which pulls the cold brine out of the hardening tank or tank in the ante room and forces it through the serving cabinet. Where circulating brine is used no coil is required, as the gravity flow method may be employed. The cold brine is forced in at the bottom of the serving cabinet and in warming rises, finally overflowing into the overflow pipe, which conveys it back to the brine tank.

The brine supply pipe need be but ¾" size in many cases, but the overflow pipe should be at least 1½" and given the benefit of any advantageous slant possible.

Where direct expansion coils are used, immersed in brine, a by-pass is sometimes used so that the plant can be operated without cooling the entire system.

Since it is difficult to estimate requirements to a very fine degree, the following computations containing liberal allowances may be utilized, with the certainty of producing uniformly excellent results.

### Counter Leakage

$S \times K \times Td \times U$   
 B. t. u. per hr. running =  $R$   
 $= 36.5 \times S.$

S = Outside surface of cream cabinet.  
 $K = 5$  = Leakage factor in B. t. u. per 24 hr. per sq. ft. per degree temperature difference.

$Td = 70$  = Temperature difference between air at 80° F. and brine at 10° F.

$R = 12$  = Hours of running time per day.

$U = 1.25$  = Usage factor. Accounts for heat leakage due to raising covers.

### Example

With the cream cabinet of a fountain measuring 6' long x 18" deep and 28" high.

B. t. u. per hr. running time =  $35.5 \times S.$   
 $S = 52.5$  sq. ft. outside surface.  
 $35.5 \times 52.5 = 1920$  B. t. u. per hr. running time.

### Ice Cream Cans

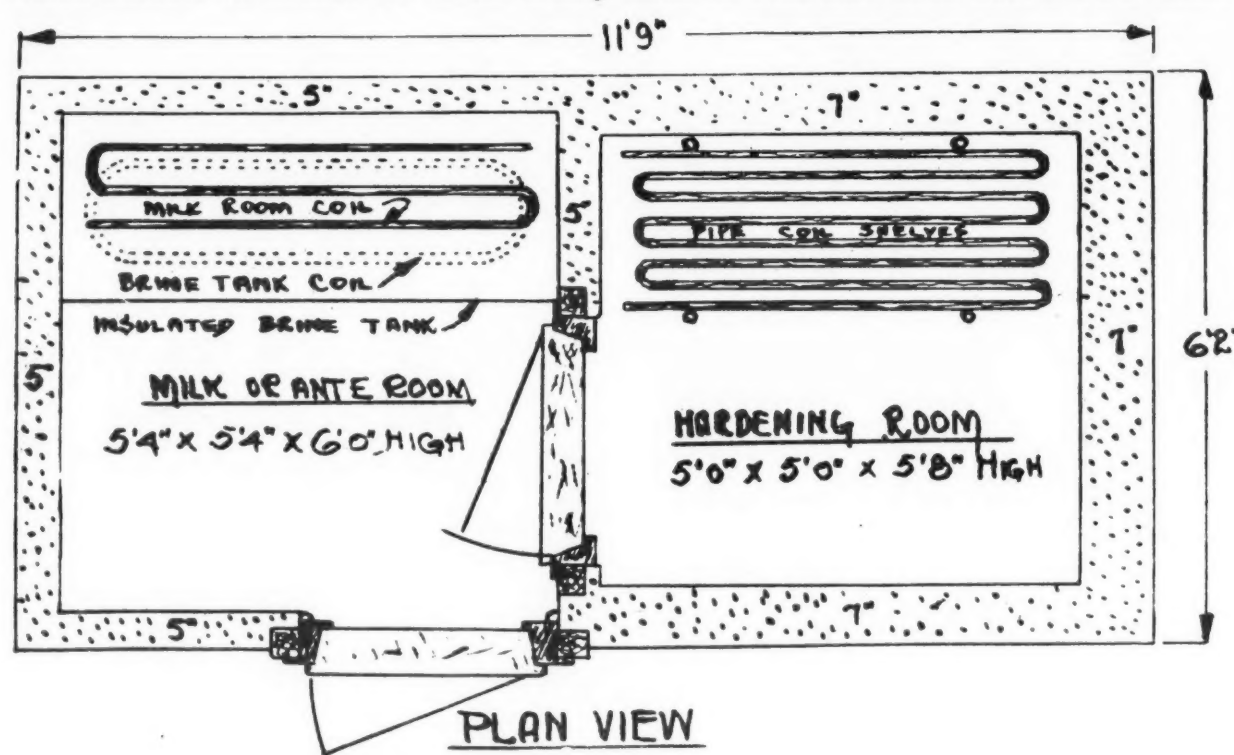
In designing freezing tanks and service counters it is important to ascertain if any certain size or type of ice cream container is to be used. The twenty-quart can is the most popular size and the greatest percentage of plants utilize the flat bottom type of container.

Some manufacturers prefer the round-bottomed can, as a saving is effected in cream, there being little or none of the waste usual with the flat bottom cans. The ice cream spoons are of such size and shape that they cannot remove the cream left at the bottom of the flat cans, but this cream is easily removed from the round-bottom cans.

Another important detail is that of the actual external diameter of the ice cream can. This overall diameter varies with the design of the can, some manufacturers utilizing different bead or band sizes. In taking the size of the ice cream cans that are to be utilized, the diameter of the can, diameter around the hoop or bead, and the overall height must be carefully checked. Usually the cans are placed in the freezing tank and the service cabinet without covers, while where they are stored in freezing rooms the covers are placed on the cans.

Where the ice cream cans are placed in freezing cabinets or tanks, it is important to have the top of the ice cream can below the brine level, or otherwise the top will not freeze, or only slowly.

## Installation to Make 60 Gal. Daily and to Harden and Store 200 Gal.



$K = 2.5$  = Leakage factor in B. t. u. per 24 hour per sq. ft. per degree temperature difference. Based on 8" of cork. Multiply by 2 if 4" cork.

$Td = 80$  = Temperature difference, outside being 80° and room temperature 0° F.

$R = 12$  = Hours running time.  
 $U = 1.33$  = Usage factor due to opening doors.

### Example

Hardening room is 6'0" x 6'0", determine machine load and collage.

B. t. u. per hr. running time = 22.2 S.  
 $S = 228$  sq. ft. outside surface.  
 $22.2 \times 228 = 5060$  B. t. u. per hr. running time.

$Lh = .06 \times B. t. u. per hr. run = .06 \times 5060 = 304$  feet of one inch.

Lb = feet of  
 Colls for the Brine Tank—Used in Ante-Room

Lb = feet of 1" Ex. Hy. Pipe for brine tank.

5 = Heat transfer factor in B. t. u. per hr. per sq. ft. of coil surface per degree difference. Taken as 5 in brine as against 2.5 in air.

$Tb = 20^\circ$  = temperature difference between brine temperature 0° F. and -20° F. in the ammonia coils:

$Lb = B. t. u. per hr. run \times 3 = .03 B. t. u.$

per hr. run.  
 $5 \times 20$   
 In the example the ante room leakage load was 5760 B. t. u. per hr. run.

Add to this the load for freezing, which was

$= 60 \times 710$   
 $= 3550$  per hr.

state, and from the table it will be found that it takes 710 B. t. u. to accomplish this, the mix being of 70° F. initial temperature.

$.6 \times 710 = 426 G =$  B. t. u. required to freeze one gallon of mix from 70° F. to the soft state.

The heat absorbed by the brine will be 426 G.

B = Gallons of brine at .8 specific heat, weighing 10 pounds per gallon, and registering 100 on the salinometer.

15 = Permissible temperature rise of brine during freezing period.

1.25 = Factor to cover brine line leakage and absorption of heat from ante room.

$B = 10 \times .8 \times 15 = 426 G. \times 1.25$   
 $B = 426 \times G \times 1.25 = 9 G$  or 4.4 G

10 x .8 x 15 = 2

For 100 gallons of finished cream the brine requirements will be:  
 $B = 4.4 \times G = 4.4 \times 100 = 440$  gallons of brine.

### Brine Hardening Tanks

Where space is at a premium, or where individuals express preference, a brine hardening tank is installed. These tanks are usually made up complete in the workshops and shipped out either in knocked down form or completely assembled, depending upon the size.

Where the tanks are of large size, such as those of sizes above three feet widths and ten feet in length, are usually delivered in knocked down form. Where conditions prevent the entrance of large sections, the tank is then built on the job.

The larger hardening tank installations are built on the spot, the top and cover sections being the only portion made up in the workshops. These large tanks are usually sunk in the basement so that the top is about eight inches above the floor level.

Before proceeding with a sunken brine tank, make certain that the basement is not subject to floods.

With the smaller hardening tanks or cabinets, as they are then termed, it is usual to finish or supply them with a finished tongue and groove, varnished or enameled. These cabinets are usually delivered in sections, the main insulating portion and tank proper being in one finished part, while the cover, furnished with lids, usually comprise another package. The coil and the plate containing the false cans are also shipped separately. In assembling very little time is required, as all parts have been fitted in the workshops, and a great deal of the danger involved in moving a cumbersome assembly, which might spring leaks in the brine tank, is eliminated.

It is usual practice to also have a square can or two available for freezing brick ice cream, and several ice

By using interchangeable tops, convenience in building and supplying these cabinets is secured.

### Brine Storage Tank

Where the ice cream is stored and hardened in a brine tank, various formulae will be:

$Lb = .03 \times B. t. u. per hr. running$  time (for 8" cork).

$Lb = .06 \times B. t. u. per hr. running$  time (for 4" cork).

Brine tank collage =  $Sa + G = 1"$  Pipe

Freezing cream =  $426 G$   
 $= B. t. u. per hr.$

Hardening cream =  $174 G$   
 $= B. t. u. per hr.$

Hardening tank collage, where brine is also used in freezer:

Freezing cream + Hardening Cream + Tank Leakage = 39

Freezing cream + Hardening Cream + Tank Leakage = 1" Pipe.

Freezing cream + Hardening Cream + Tank Leakage = 49

Freezing cream + Hardening Cream + Tank Leakage = 1½" Pipe

### Serving Cabinets

Ice cream is usually hardened and stored in the basement, and the individ-

This is a National Message to the American Housewife

## Good Housekeeping Institute

**Recommends** Proper arrangement of foods in your refrigerator, and KVP advises the use of Proper Papers for food wrapping and protection. There is a big difference—to get the most good out of your refrigerator are you using both KVP Refrigerator Papers?

There's Household Parchment for cooking and for wrapping all greasy, moist and wet foods—it's boil-proof—it wears—use it again and again. KVP Heavy Waxed Paper "Carter Box" seals tight (one sheet will do)—keeps the moisture in or keeps the moisture out as desired. Remember, all foods should not be wrapped in Waxed Paper—for 100% results use the famous pair of KVP food wrapping and cooking papers.

Try your Grocer, Stationer, Hardware, Department Store and Neighborhood Merchant first; if they cannot serve you, KVP will pay the parcel post.

Send \$1.00 for the two big 50c rolls (West of Missouri and South Coast States, 60c per roll, both for \$1.20 postpaid).

**KVP** STANDS FOR "THE WORLD'S MODEL PAPER MILL" KALAMAZOO VEGETABLE PARCHMENT CO. KALAMAZOO MICHIGAN U.S.A. MANUFACTURING WORLD-WIDE FAMOUS FOOD PROTECTION PAPERS

If you are in any way interested in Electric or Gas Refrigeration read the above over twice because it will mean much to you. This is our National message to the American Housewife in cooperation with your refrigerator sales campaigns. Write for samples and advertising ideas that sell your refrigerators to new customers and keep old customers interested.

You can sell those big prospects who have no electricity

Now!

Fill their orders with



## Gas-Engine Driven Units

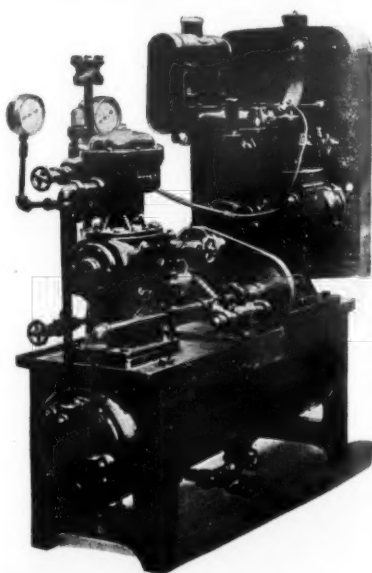
For commercial use, in dairies, country stores, plantations, summer resorts, on fishing boats, export work, etc.

The standard Frick Unit with gasoline engine in place of the usual motor.

Floor space required only 3' 8" by 1' 6". Operates semi-automatically.

Write for full details.

**Frick Company**  
 MAKERS OF THE FRICTION MOTOR  
 ICE MACHINERY SINCE 1892





## Frigidaire

Some of the improvements which have been successful when applied to other types of its equipment have been incorporated by Frigidaire Corporation in its new ice cream cabinets, a check of the present Frigidaire line shows.

One of the most important developments in the electric ice cream cabinet industry within the past year was the introduction of the Frigidaire cold control in all models. This device, originally intended to enable the housewife to regulate the freezing time in the ice trays of her refrigerator, has been installed in ice cream cabinets to enable individual users to make their own temperature adjustments.

The Frigidaire cabinets retain their automatic temperature regulator, which maintains an even temperature at the mark set. This feature is supplemented by the cold control, by the use of which an ice cream cabinet user can tap the reserve power of the Frigidaire compressor to compensate for extra heavy service. The cold control is on the compressor unit, easily accessible with the removal of two thumb screws holding a side panel in place.

A pronounced swing toward packaged cream has resulted in the addition of one more square sleeve in every Frigidaire

ice cream cabinet of the four-hole size or over. The two-hole portable has been equipped with a top of stainless metal. The four-hole portable has been given the new model "P" 1/4 H. P. air cooled compressor.

In May or June, Frigidaire will bring out a 3/4 horsepower water cooled compressor and a one horsepower air cooled compressor, to be made a part of soda fountain equipment sold by this company. A need for compressors of the capacities furnished by these two long has been felt in the fountain industry. It was said, and the addition of these two units was needed to round out the line.

Frigidaire reports that many manufacturers of soda fountain equipment are making use of the Frigidaire tank type water cooler in designing equipment. These water coolers have been found to answer the double purpose of cooling the drinking water, and pre-cooling sweet water before it is carbonated for fountain use.

Adapting mechanically operated water coolers and ice cream sections to the soda fountain has brought the consumption of ice in the modern soda fountain down to a minimum—with virtually the only remaining need for it that of being chipped and served in drinks.

## Kelvinator

THE Kelvinator Corporation, Detroit, reports increases in sales of its recently introduced line of portable ice cream cabinets which are especially adapted for small stop purposes.

The new portables are manufactured in three standard sizes—two, three and four hole—to accommodate all types of U. S. 20-quart cans. Tops are of chromoloid, a highly polished chromium plated metal. Side panels are of rust-proofed body metal, substantially anchored to a riveted angle iron frame, with a black lacquered satin finish.

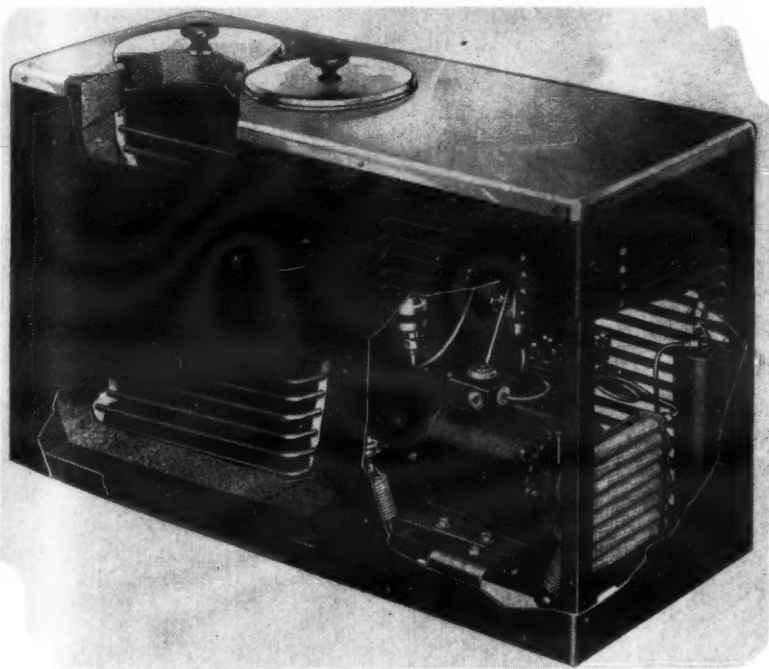
The brine tank is eliminated in these new portable cabinets, as the cooling coils are embedded in stone composition in direct contact with the cooling cham-

ber, providing maximum heat transfer. Insulation is 3 to 3 1/2 inches thick—completely sealed and protected against moisture with asphaltum.

The new Kelvinator portable ice cream cabinets are provided with the new model LM20 condensing unit. It is spring and rubber insulated to eliminate vibration.

In connection with this refrigerating unit a new thermostatic control, Kelvinator built, is used for maintaining an unvarying temperature control.

A picture on this page shows one of the new Kelvinator 2-hole portable ice cream cabinets with cutaway section showing the refrigeration machine in the right side of the cabinet.

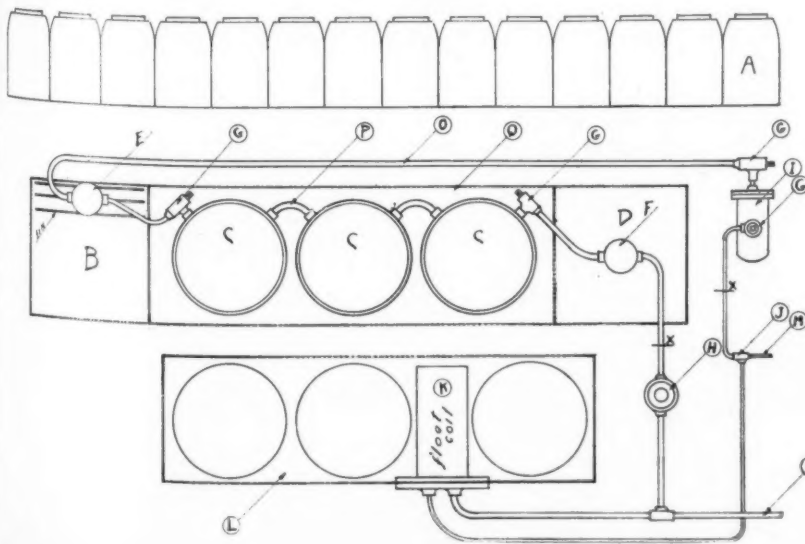


## IcElect

THE IcElect Corporation of Omaha, Nebr., now has an evaporator designed for use in ice cream and soda fountains. As fitted for a combined fountain and cream service the installation shows that every item in connection with the business is cared for in a very compact form.

The ice cream freezer evaporator is nothing more nor less than a series of the IcElect cylinders in multiple. Two cylinders sealed together at the ends make up the evaporator and the refrigerant circulates between them. Here is the hook-up as applied to the ordinary soda fountain.

The syrups are cooled by the line "O" evaporator; "E" maintains 34 degrees temperature in the bottle goods department; "C" 38 degrees for dipping cream; evaporator "F" maintains 34 degrees for drinking water. Cabinet "L" is maintained at two degrees above freezing. The difference of temperature in the fountain and flooded cabinet is maintained by the special regulating valve "H." This hook-up maintains three separate temperatures: one at 34 for drinking water; one at 36 or 38, as desired, for dipping cream, and one as low as zero, if needed, for freezing cream.



## Copeland Equipped



THE "Puritan Cafe," 3004 West Grand Boulevard, Detroit, is completely Copeland equipped. Two Copeland X-1200 condensing units with a daily ice melting capacity of 2,400 pounds operate a short order box, a storage box, the soda fountain illustrated here, a 6-foot sandwich case and a 5-foot floor water cooler. Three of Copeland's convection blower type of cooling unit are to be installed shortly to keep the restaurant's temperature at a comfortable level.

## Servel

SERVEL Sales, Inc., Evansville, Ind., announces that it is featuring its Models 50 AW and 65 AW compressors for soda fountain installation. Submersion type chilling units in the Servel line have been changed to increase their efficiency in low temperature work.

Through the use of a new snap action valve, two or more chilling units may be installed in the fountain to maintain different temperatures. Servel is now offering as optional equipment by a number of manufacturers who will ship fountains with Servel chilling units installed.

## Universal Cooler

NEW additions have been made by the Universal Cooler Corp., Detroit, Mich., to round out its line of ice cream and soda fountain equipment. These include a restaurant box and a fountainette.

The cabinet designed to meet the demand for equipment in restaurants has two holes for ice cream, compartment for food storage and bottled goods, and butter tubs. An outlet at the top of the box is connected to the water cooling facilities in the cabinet.

During the last few years roadside stands have been popping up everywhere along the highways. Universal Cooler engineers have constructed a fountainette suitable for installation in these stands. Four holes in this model provide large storage for ice cream. A two-way water draft arm furnishes carbonated water and cool drinking water. This fountainette has a sink, three syrup jars and two crushed fruit jars.

In addition to these two new jobs, Universal Cooler has a complete line of ice cream cabinets ranging from two to twelve holes arranged in single or double rows. Combination cabinets have compartments for storing bottled beverages as well as ice cream. All models are of all-metal construction. Model T-1 compressors are used in most installations of these cabinets.



IN THE VERY HEART OF DETROIT

THE TULLER is the headquarters for tourists and travelers. Delightfully furnished, homelike atmosphere. Abundance of air and sunshine, large, spacious lobbies and lounging rooms. Famous for our restaurants.

800  
ROOMS WITH BATH  
\$2.50 and up

HOTEL TULLER  
Facing Grand Circus Park

HAROLD A. SAGE, Manager

LAYE INC.

## Mileage

London, England—Traveling less than two inches at a time, the two pistons of a Frigidaire compressor serving an ice cream cabinet at Hove, has moved a total distance each of 30,486 miles in the last four years.

This information was compiled by service officials of Frigidaire, Limited, at the request of the Frigidaire user. The compressor itself was estimated to have made no less than 551,880,000 revolutions, while the motor, which never has failed in four years of service, has turned over 2,601,720,000 times in that period.

## Marine

IN both England and Australia celebrations have been held this year to commemorate the fiftieth anniversary of the first shipment of meat from Australia to England in a refrigerated vessel.

An Australian reader of the NEWS, who doubtless has been hearing and reading about the fiftieth anniversary celebration, sends the following suggestion:

"If you would consider setting aside an issue to shipping business that is selling and installing refrigeration equipment in coastal and ocean going vessels, I can report on good progress in that line over here."

Probably a whole issue would be too much shipping for the readers of the NEWS, but there certainly is room for some material of that sort.

# The NERCO Electric Water Cooler

The result of years of effort and usage. Outstanding characteristics of beauty—sturdy construction—efficient refrigeration—absence of "servicing" make this unit a real profit maker.

FRANCHISE for territory still open—a remarkable opportunity that opens a new market to all live refrigeration dealers—For OFFICES, THEATRES, HOSPITALS, CAFETERIAS.

A QUALITY COOLER—Silent in operation. Porcelain Receptor and Top—Chrome Finish—Welded Cabinet—Cork Insulation—Filter. UNUSUALLY PRICED.

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